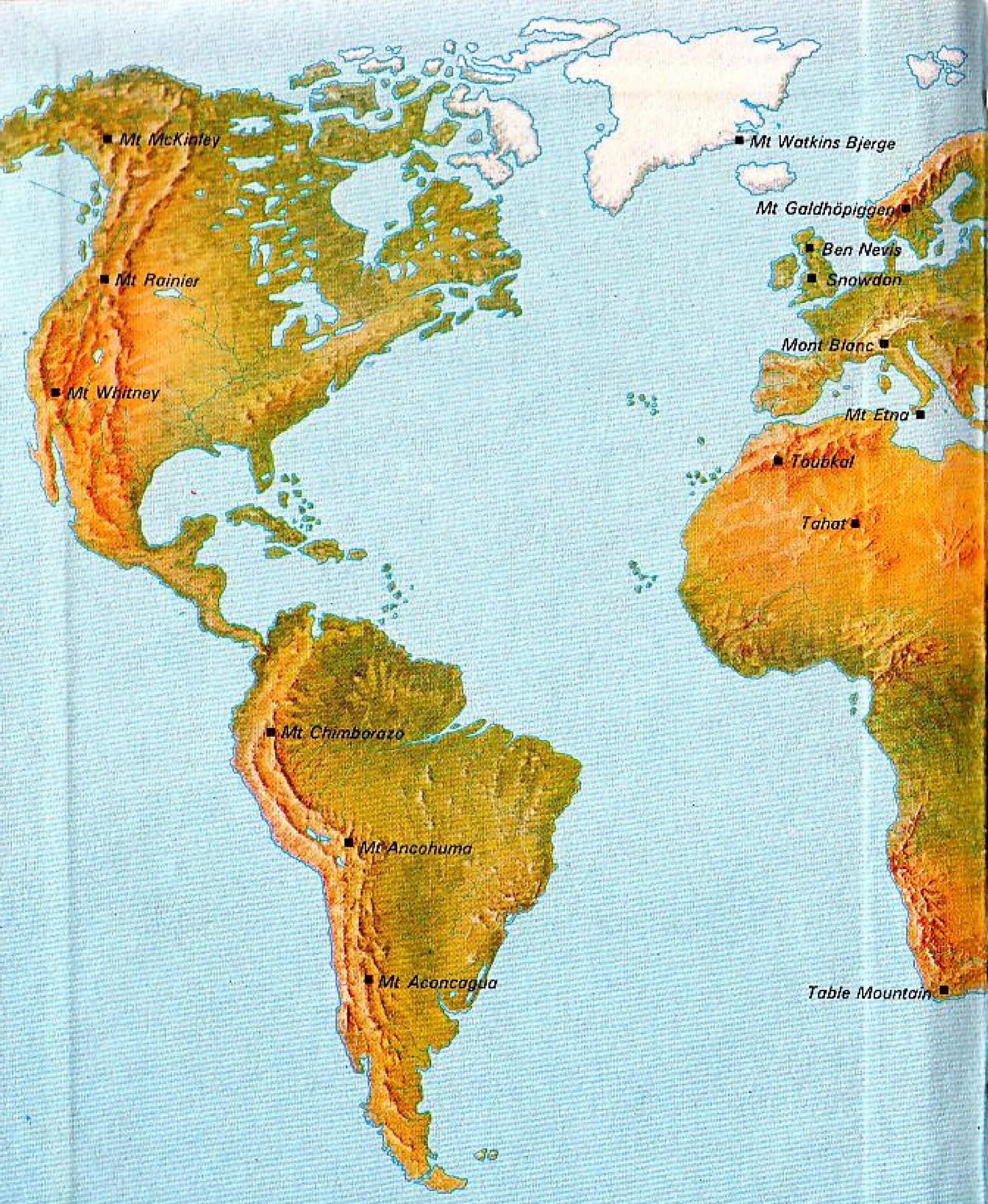




mountains





9144 m

Mt McKinley

Mt Chimborazo

Mt Ancohuma

Mt Aconcagua

Mont Blanc

Toubkal

Tahat

Table Mountain

Mt Rainier

Mt Whitney

Mt Watkins Bjerge

Mt Galdhøpiggen

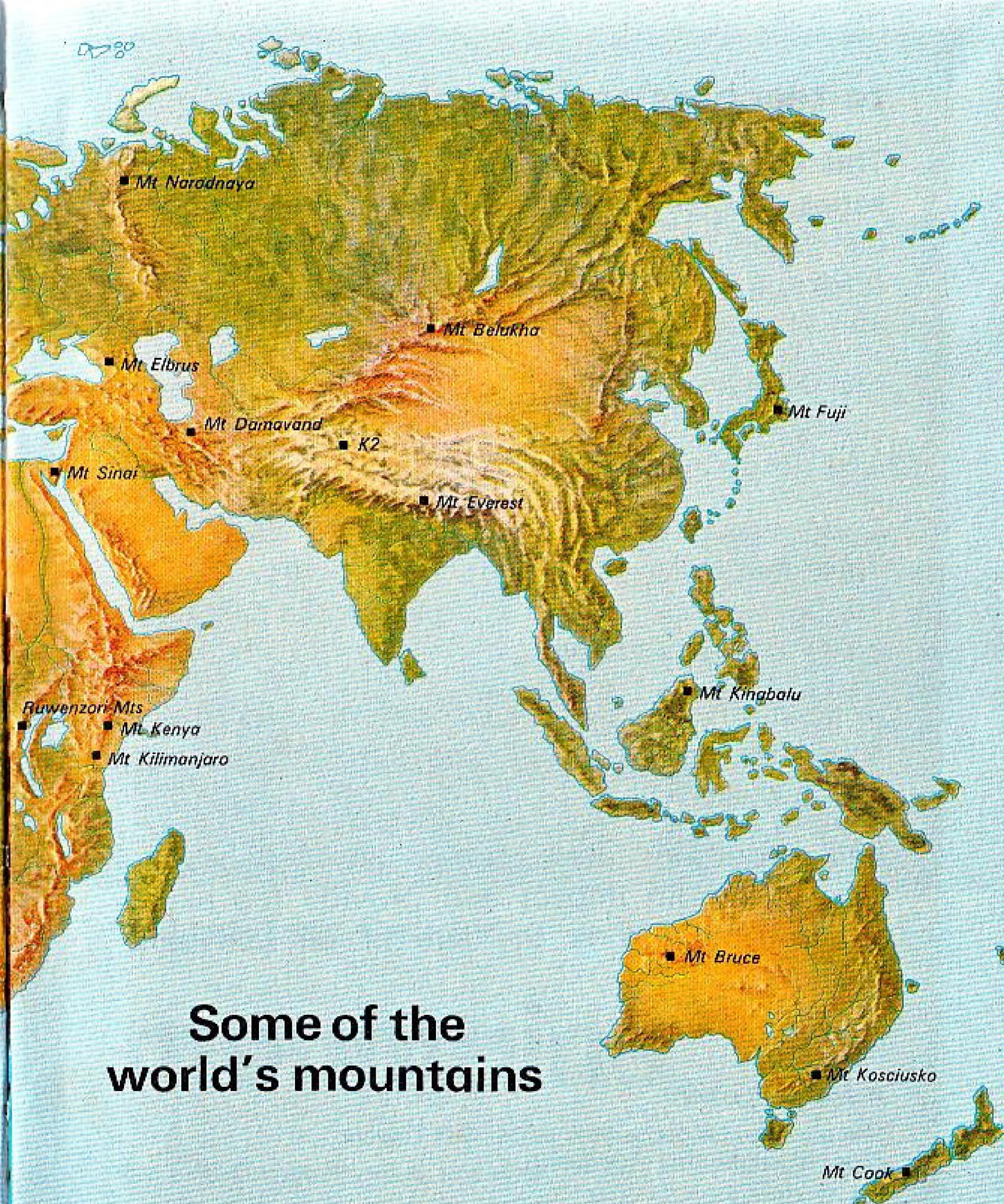
Mt Etna

Ben Nevis

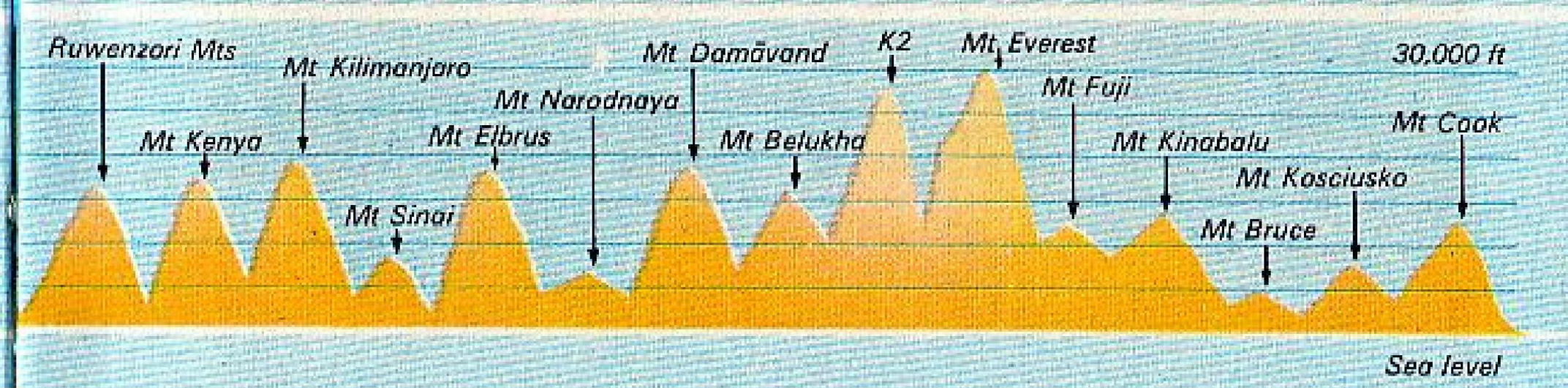
Snowdon

Sea level

Horizontal lines represent intervals of 1524 m (5,000 ft)



Some of the world's mountains



to teachers and parents

This is a LADYBIRD LEADER book, one of a series specially produced to meet the very real need for carefully planned *first information books* that instantly attract enquiring minds and stimulate reluctant readers.

The subject matter and vocabulary have been selected with expert assistance, and the brief and simple text is printed in large, clear type.

Children's questions are anticipated and facts presented in a logical sequence. Where possible, the books show what happened in the past and what is relevant today.

Special artwork has been commissioned to set a standard rarely seen in books for this reading age and at this price.

Full colour illustrations are on all 48 pages to give maximum impact and provide the extra enrichment that is the aim of all Ladybird Leaders.

Acknowledgments

The photograph opposite is by Mr G H Towers;
cover illustration by Roy Smith.

© LADYBIRD BOOKS LTD MCMLXXVII

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photo-copying, recording or otherwise without the prior consent of the copyright owner.



A Ladybird Leader

mountains

by P H Armstrong BSc MA PhD

with illustrations by Gerald Witcomb MSc AD

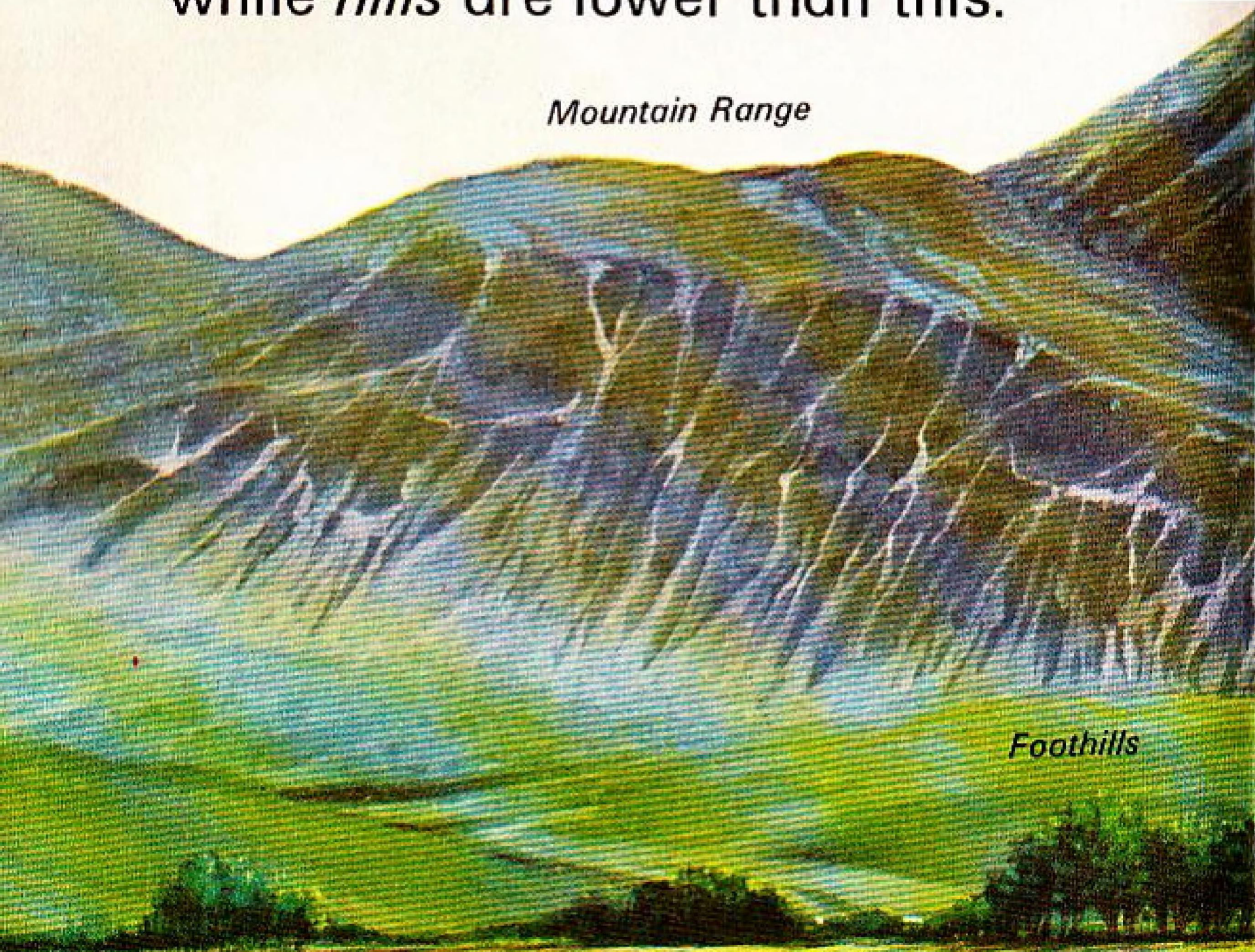
Ladybird Books Loughborough

What is a mountain ?

A mountain is steep land that stands out clearly above the land around it.

Sometimes it is said that *mountains* are more than 305 metres (1,000 ft) above sea level, while *hills* are lower than this.

Mountain Range

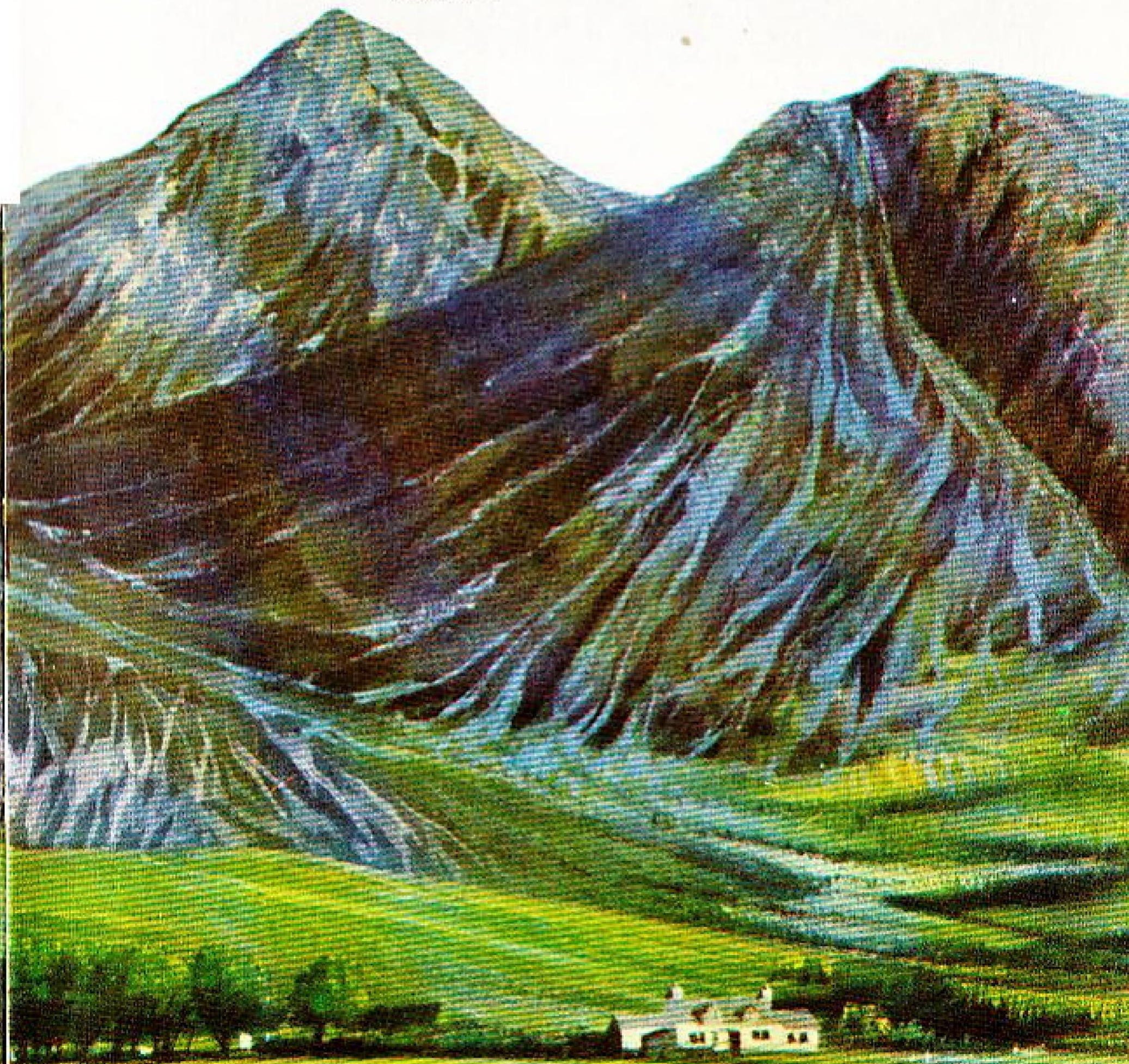


Foothills

A group of several mountains is called a *mountain range*.

The highest point of a mountain is called the *summit*.

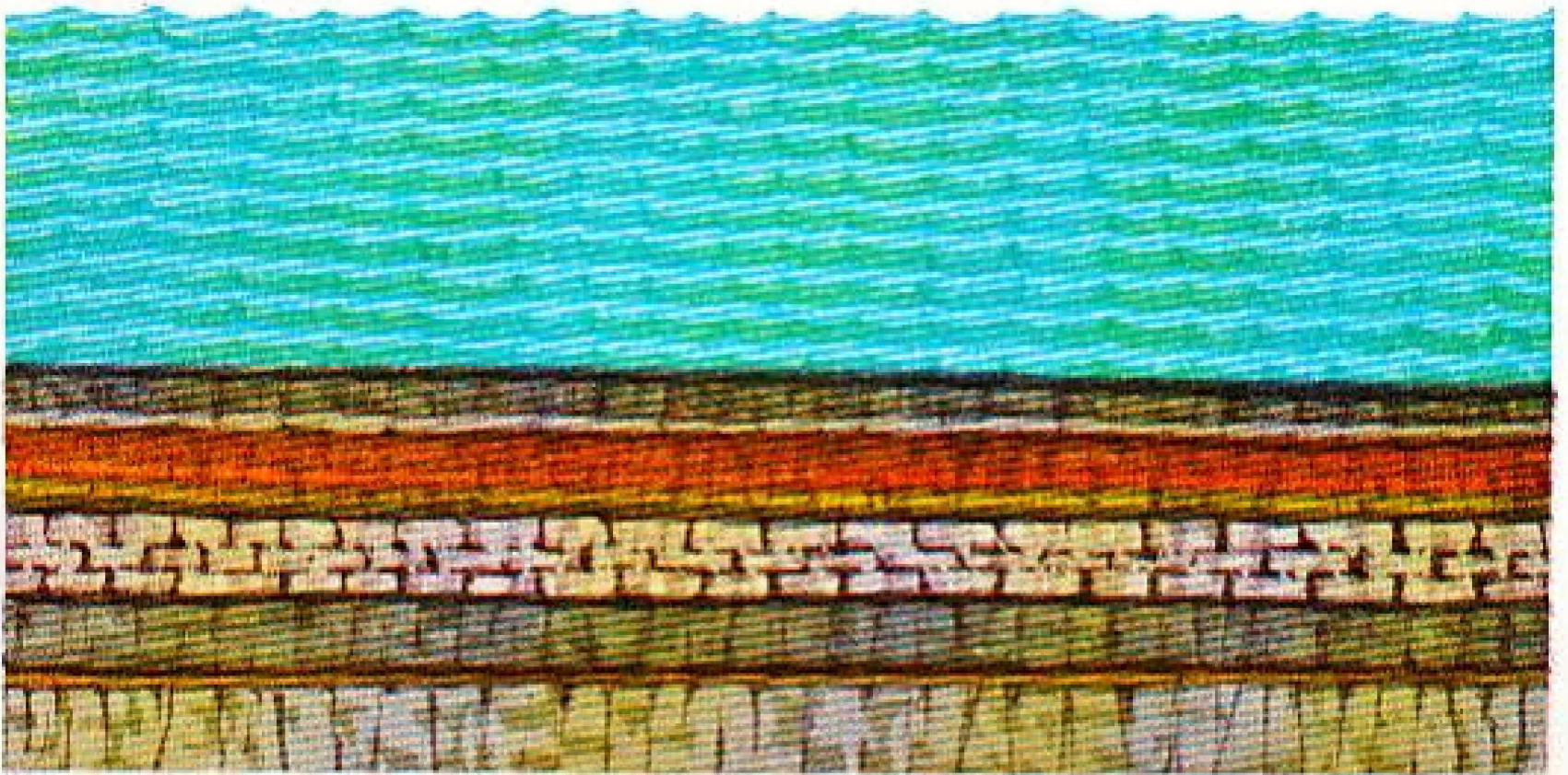
Summit



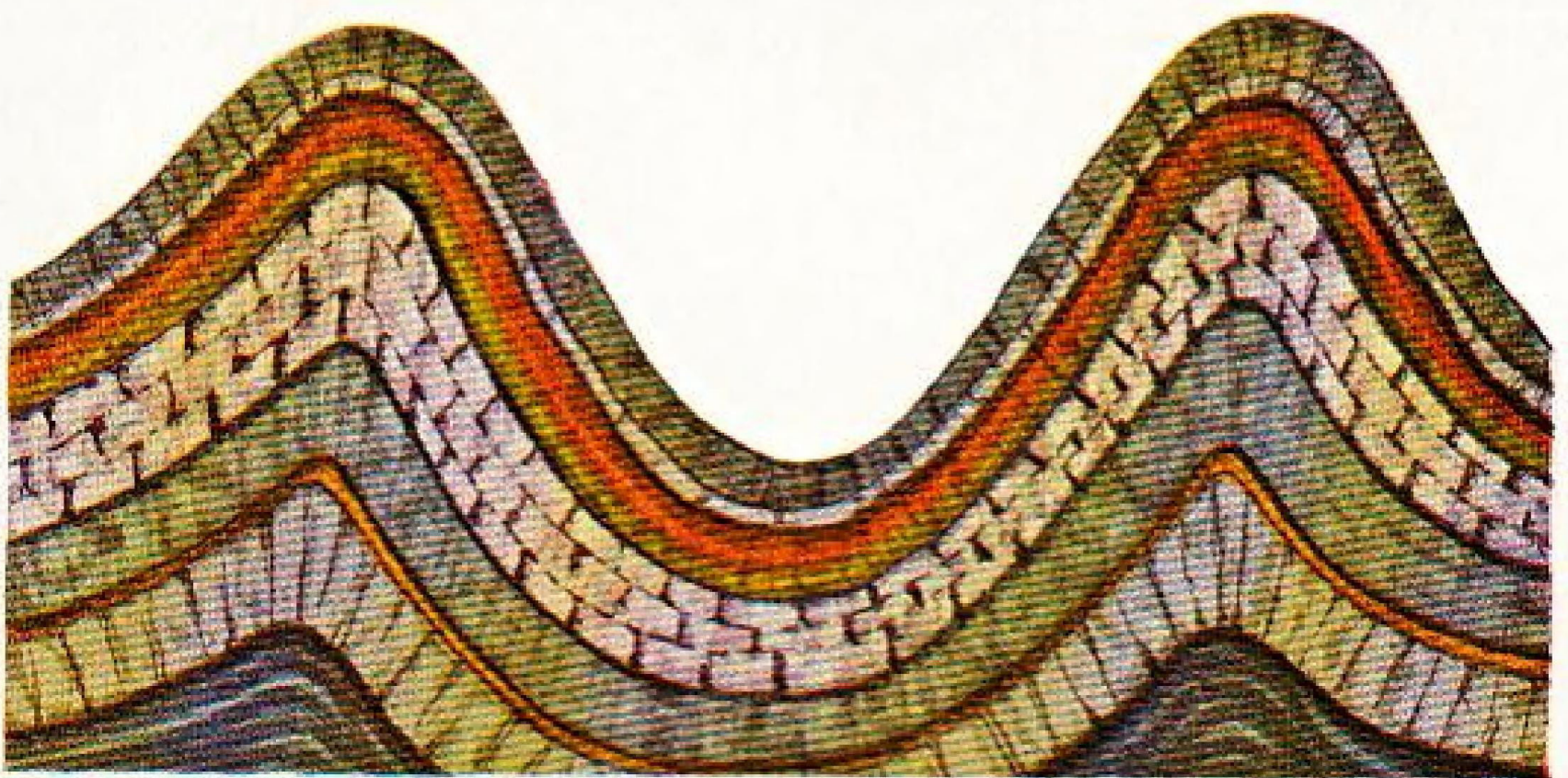
Plain

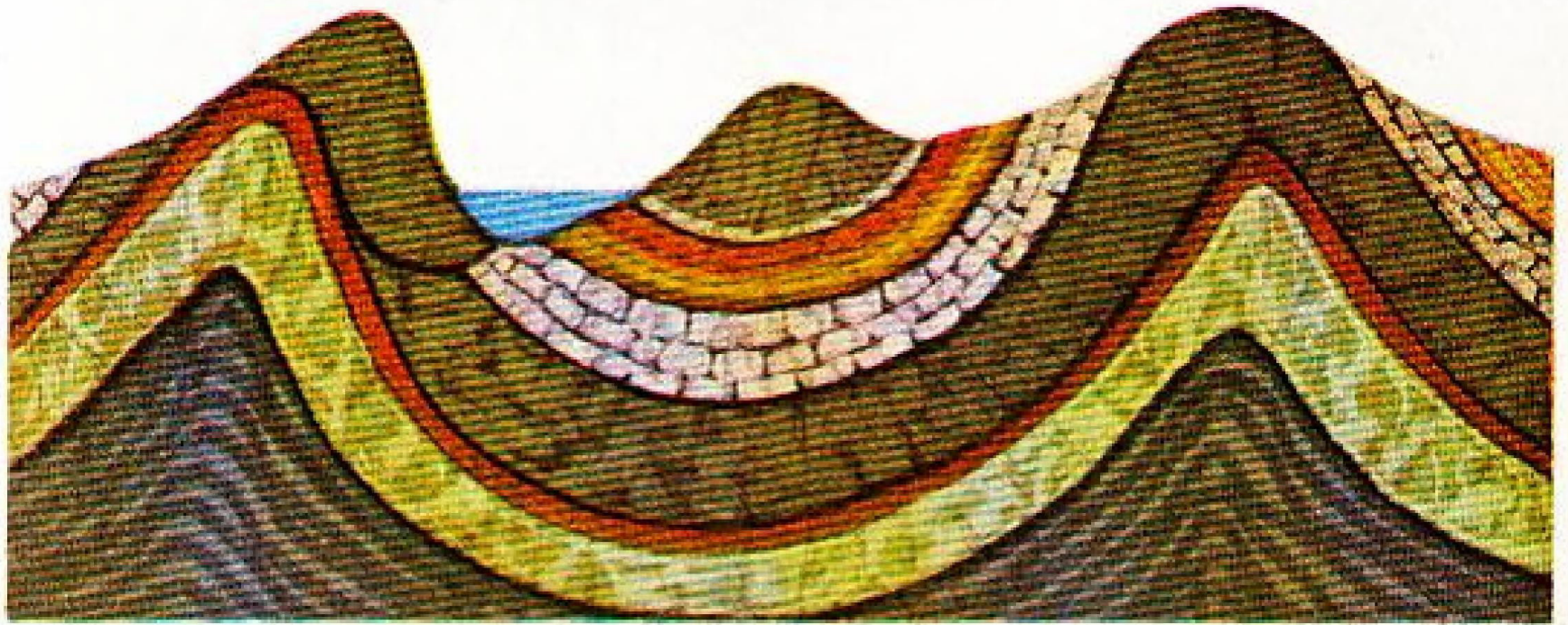
How mountains form

Some mountains were formed by the folding of rocks that were once beneath the sea.



When the rocks were pushed up, new land formed.





Rain, frost and rivers gradually wear the land away over thousands of years.

Sometimes deep *valleys* cut by rivers run through mountain ranges.





Mountain weather

It is very cold far above sea level,
so on very high mountains
summers are short.

Often it is very windy
close to the summits.



Mountain ranges sometimes have more rain than lower ground nearby. When a high mountain reaches into the clouds, someone standing on the summit would be surrounded by mist.

Plant-life on mountains

Because it gets wetter and colder as one goes higher, different plants grow at different heights on a high mountain.

In the Rocky Mountains of the south west USA cacti grow in the deserts of the foothills.

Higher up are pine and spruce forests. Above them grow only a few rock plants, mosses and grasses. There are patches of snow on the highest mountains all through the year.



*Rock and
Snow*

13000 3960

*Grasses and
Mosses*

11000 3350

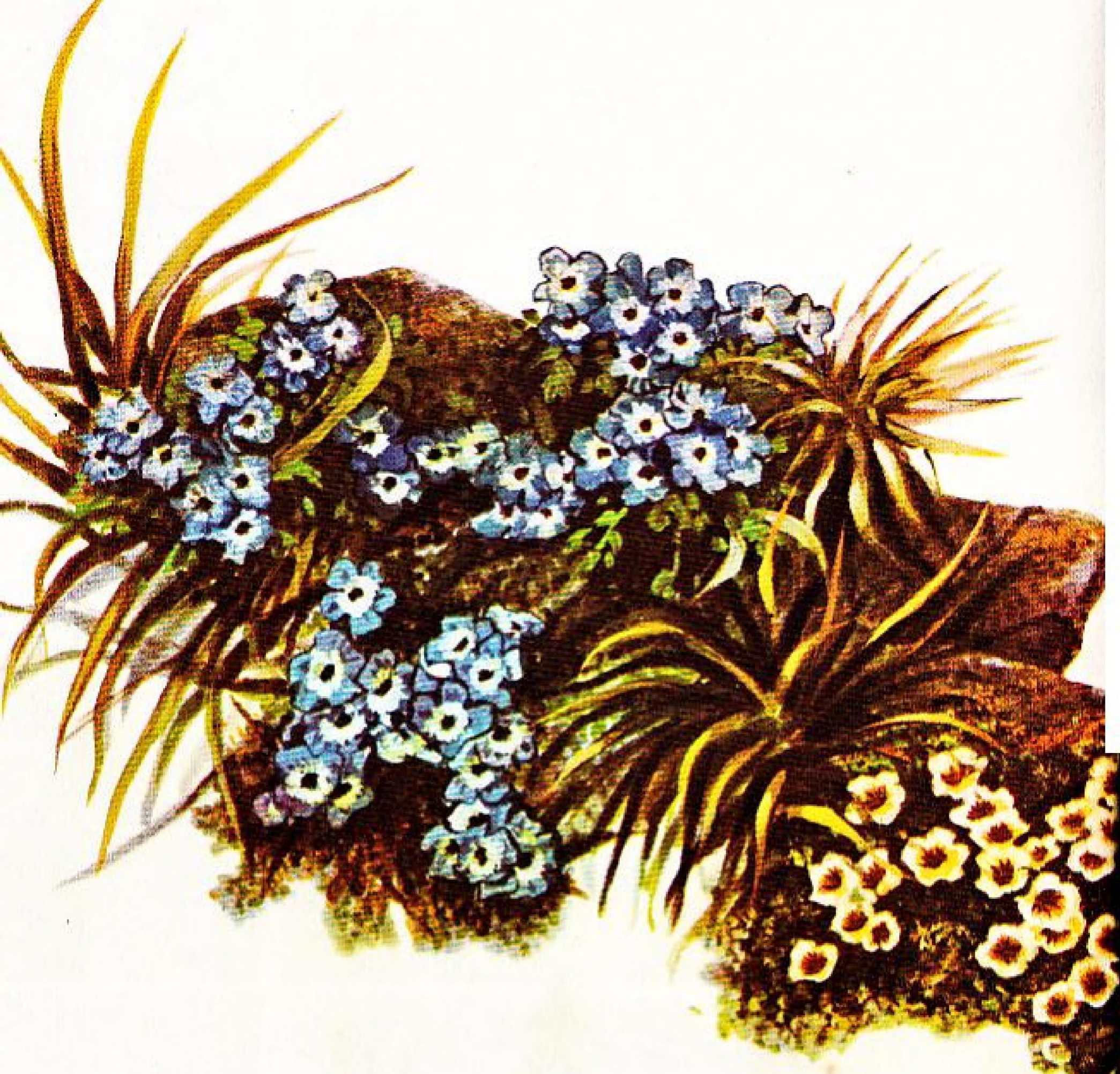
*Fir and
Spruce
Forest*

9000 2740

*Pine
Forest*

6500 1980

*Desert with
Cactus and
Salt Bush*up to
2000 610



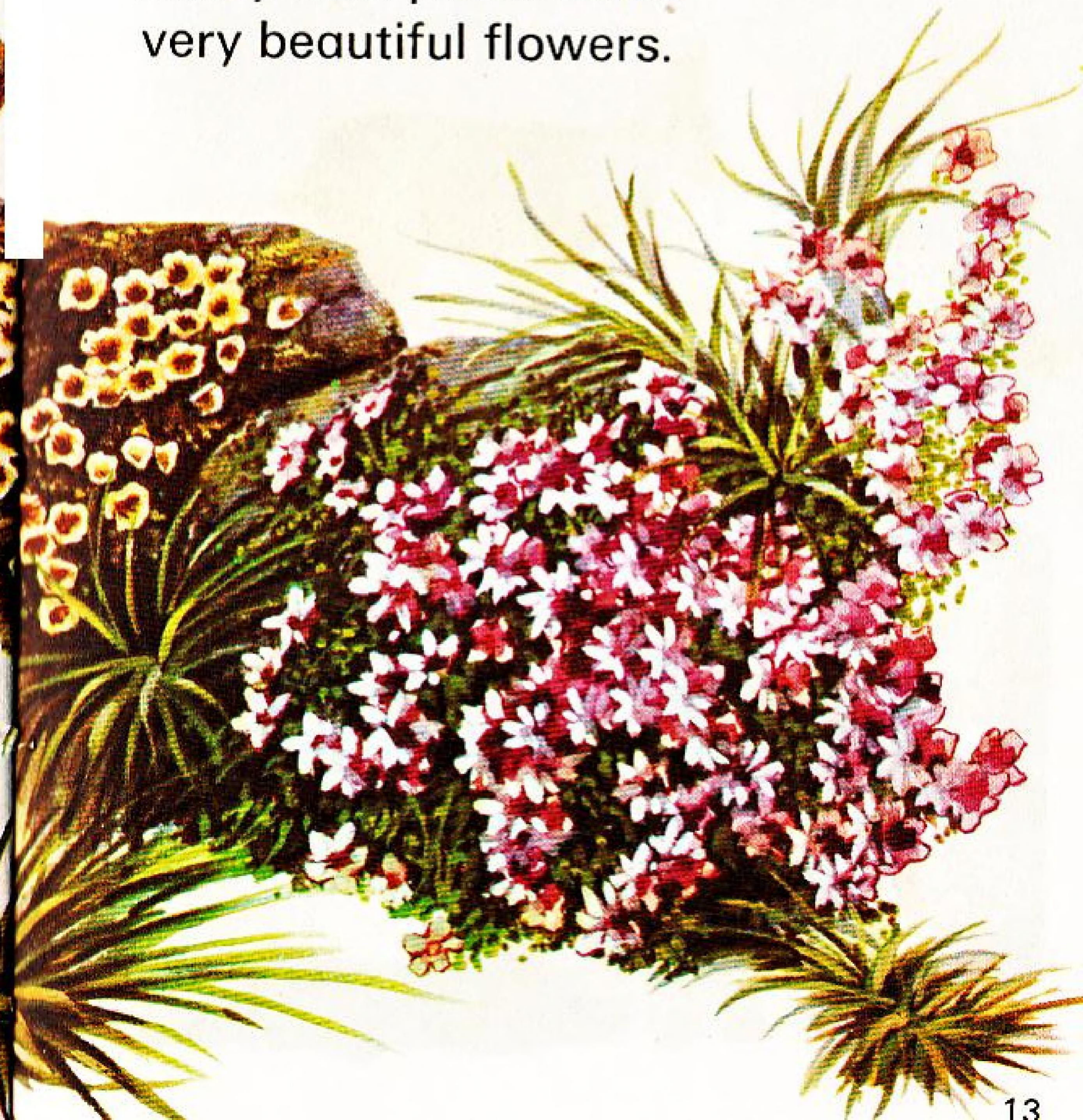
Alpine plants

Rock plants or *alpine plants* are small (they are named after the Alps, the range of high mountains in southern Europe) and often grow in cracks in the rocks.

Some are like pin-cushions
so that they are not blown to pieces
by the strong winds.

They can survive the cold winters
of high mountains.

Many rock plants have
very beautiful flowers.



Mountain animals

Animals that live in mountainous areas are very sure-footed and can climb over rocky ground.



Chamois

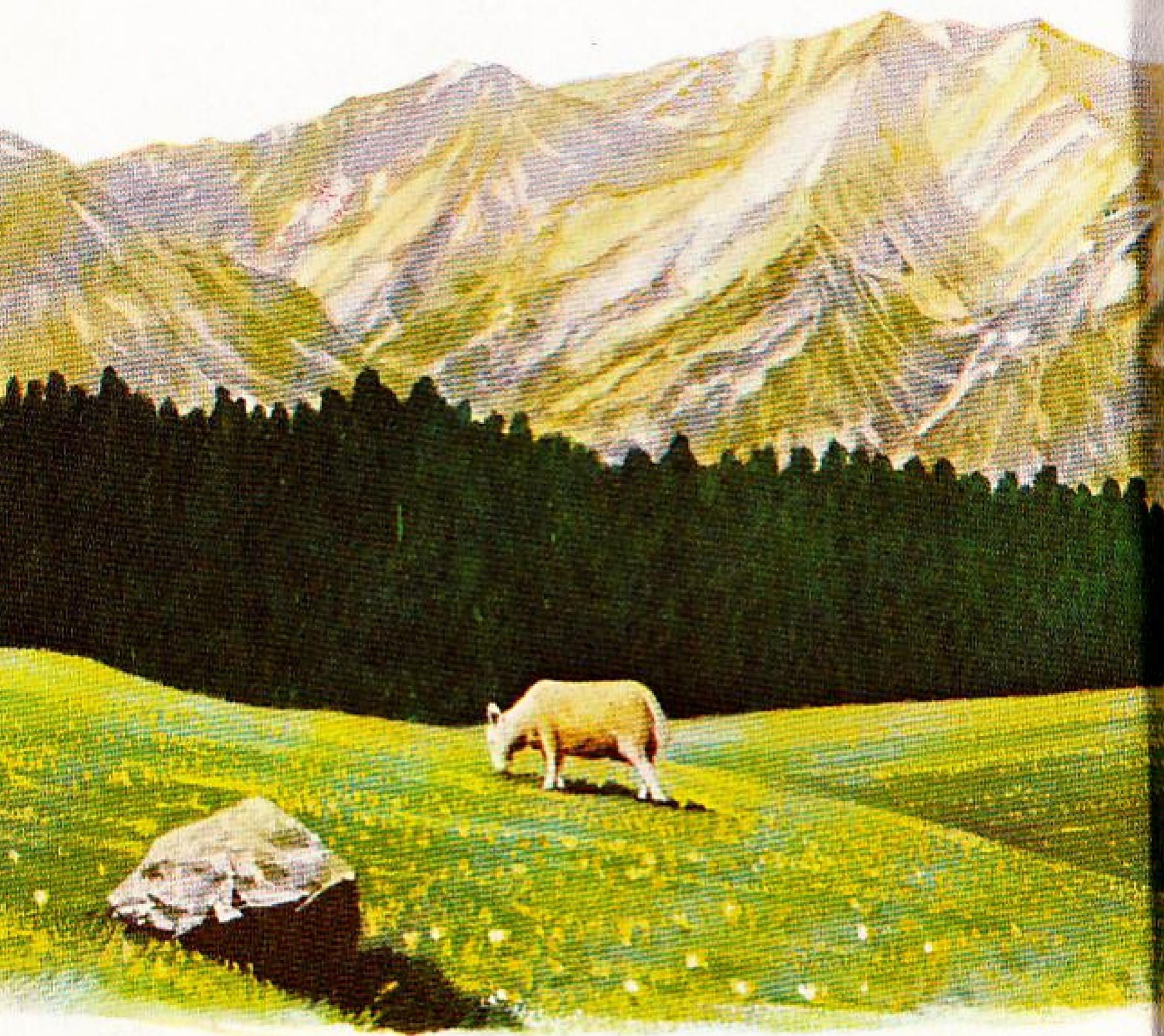


Ibex



Bighorn Sheep

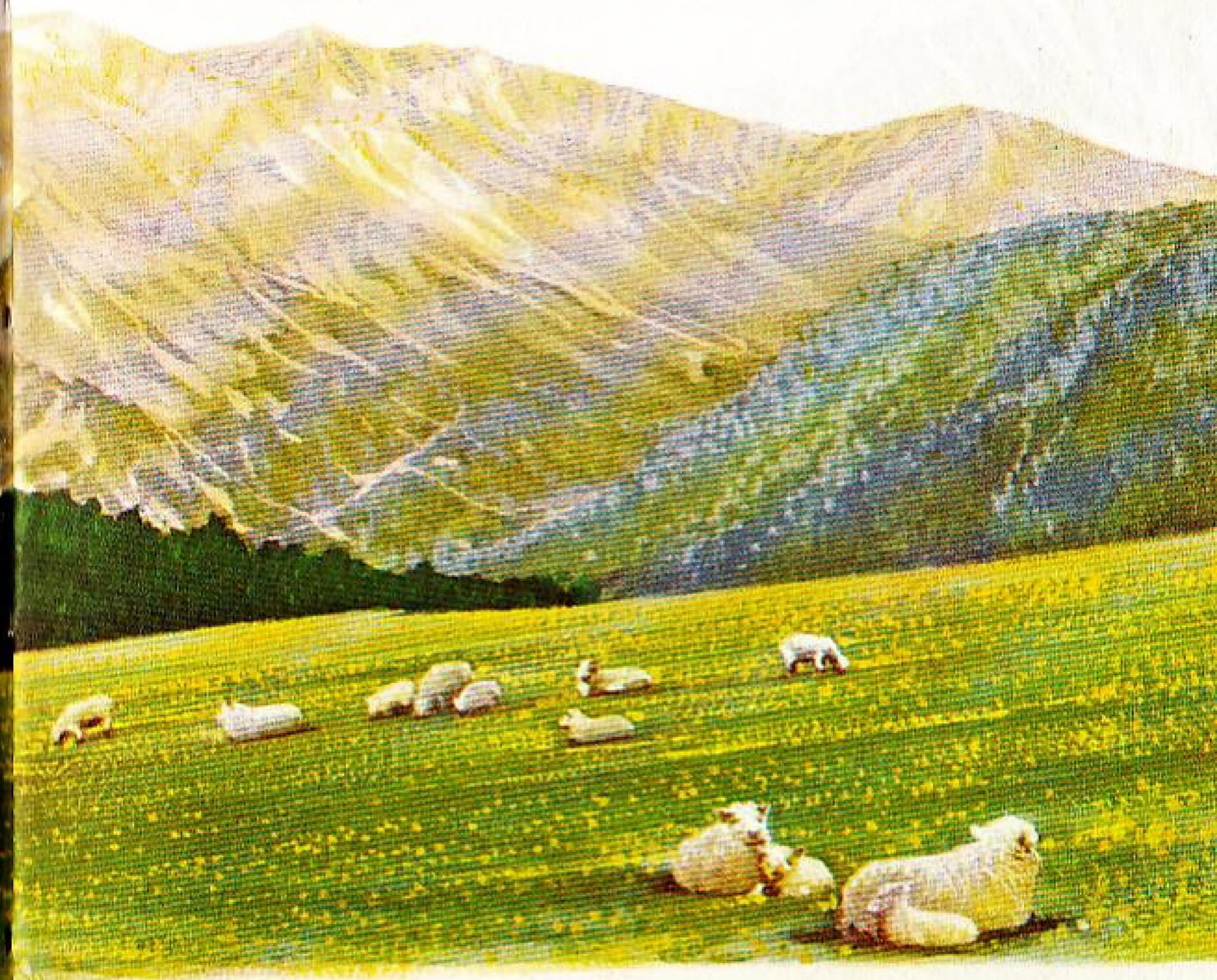
Ibex and chamois (say sham-wa) are among those that live in the Alps, and bighorn sheep graze in the Rocky Mountains.



Alpine meadows

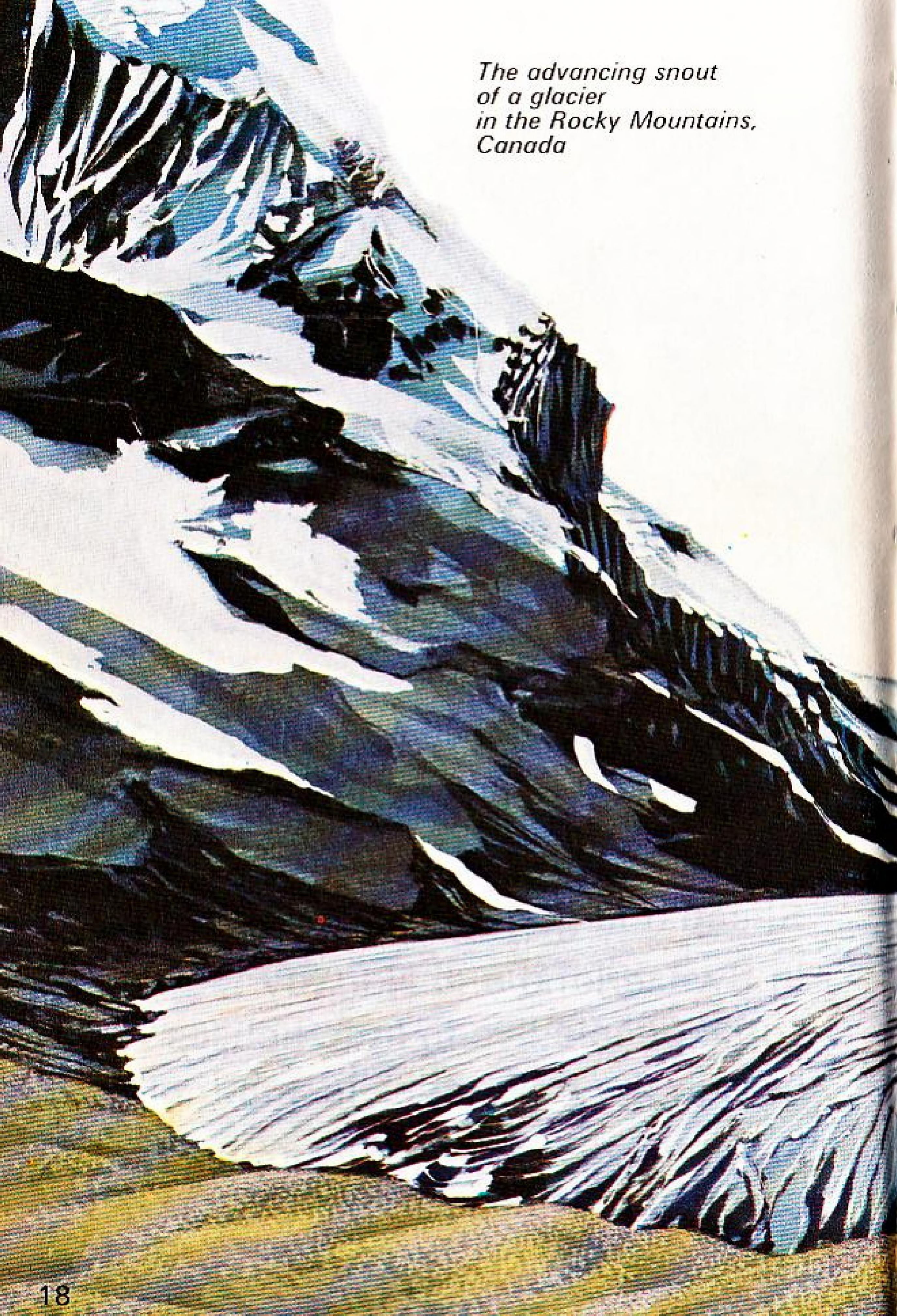
On the mountainsides of the Alps and some other mountain ranges alpine pasture is found.

These grassy areas are full of flowers in summer.



Sheep and goats often graze there.
In Switzerland and Norway
some people live in little houses
high in the mountains in summer.
In winter they take their animals
down to a village.

*The advancing snout
of a glacier
in the Rocky Mountains,
Canada*



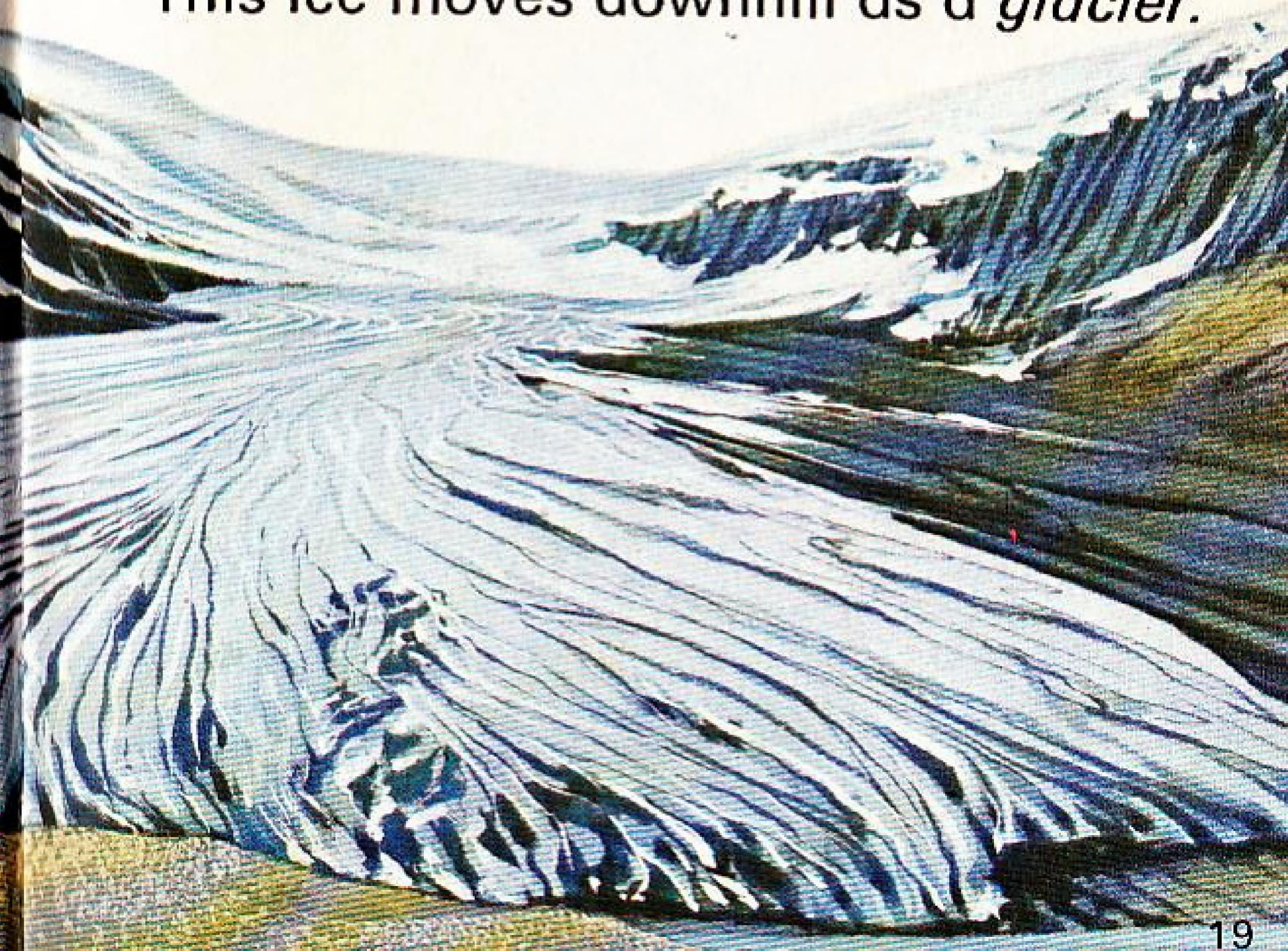
Snow-fields and glaciers

On the very highest mountains,
close to the summits
of the Himalayas,
Alps and Rockies,
snow-fields are found.

Sometimes more snow falls in winter
than melts in summer.

As layers of snow press
on those below, ice is formed.

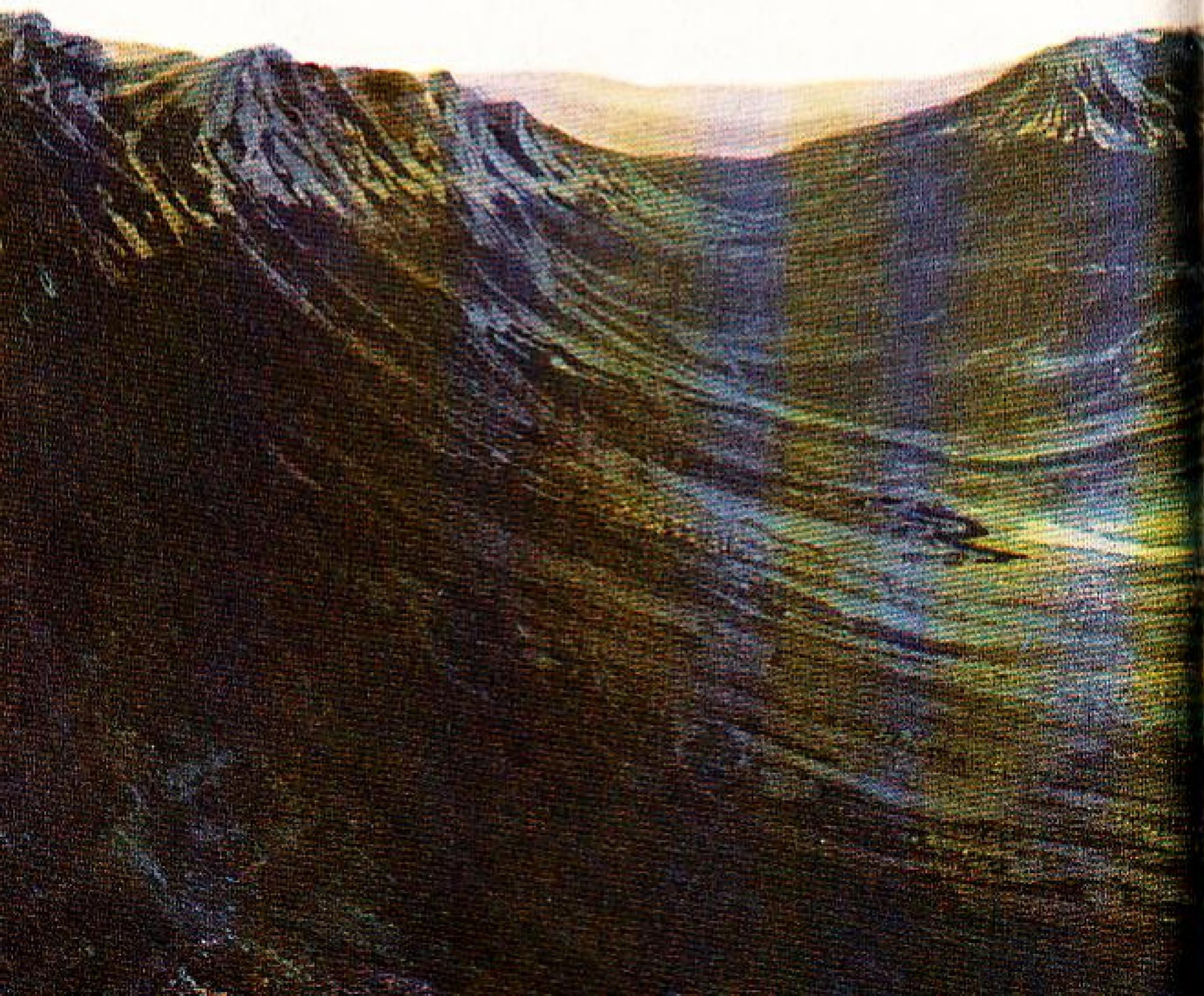
This ice moves downhill as a *glacier*.



Glaciers in Britain

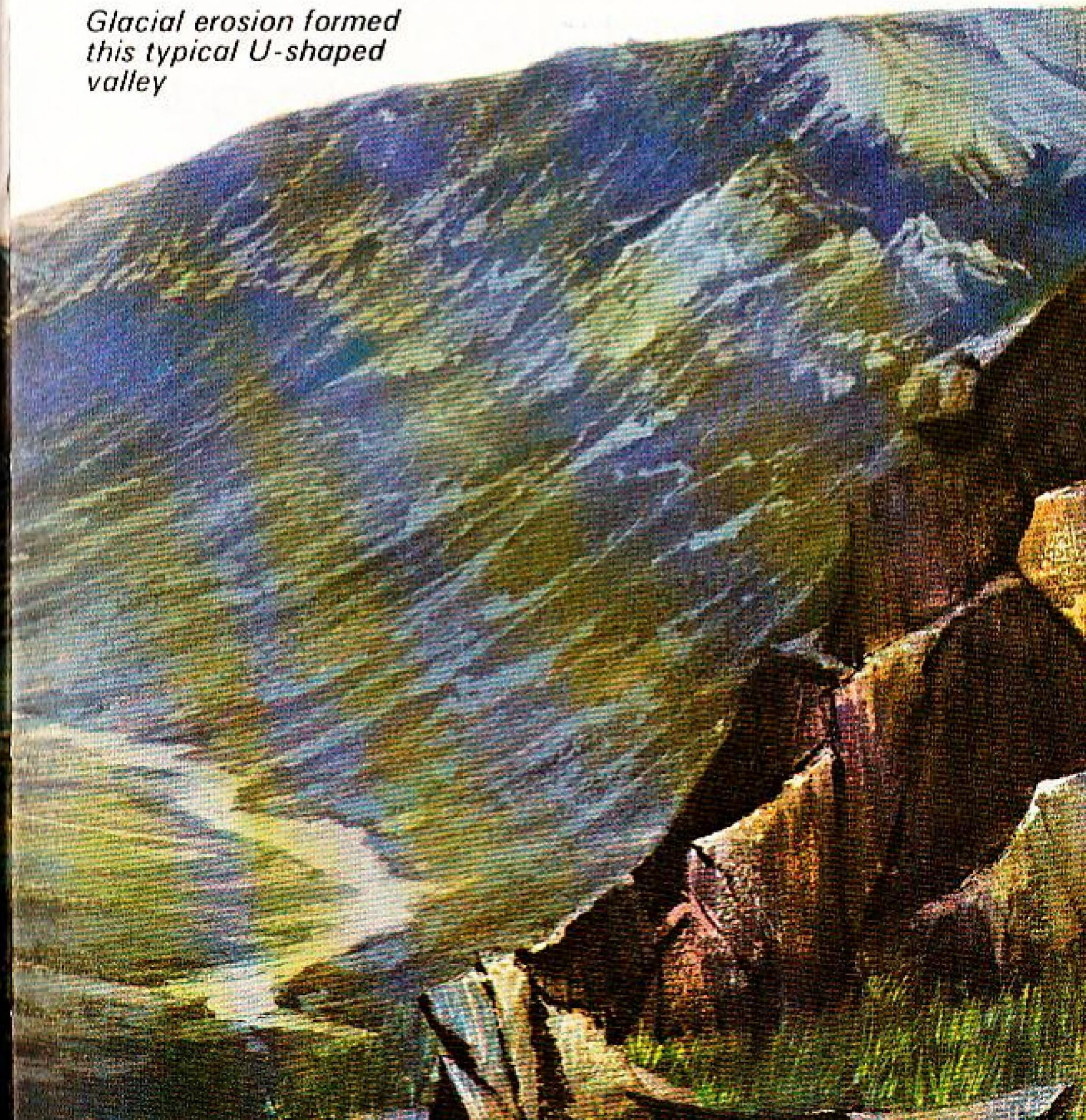
In time glaciers can wear away
(*erode*) great masses of rock.

Thousands of years ago
in the Ice Age
there were more glaciers
than there are today.



They filled many of the valleys
in the mountains
of northern England, Scotland,
Ireland and Wales.

*Glacial erosion formed
this typical U-shaped
valley*

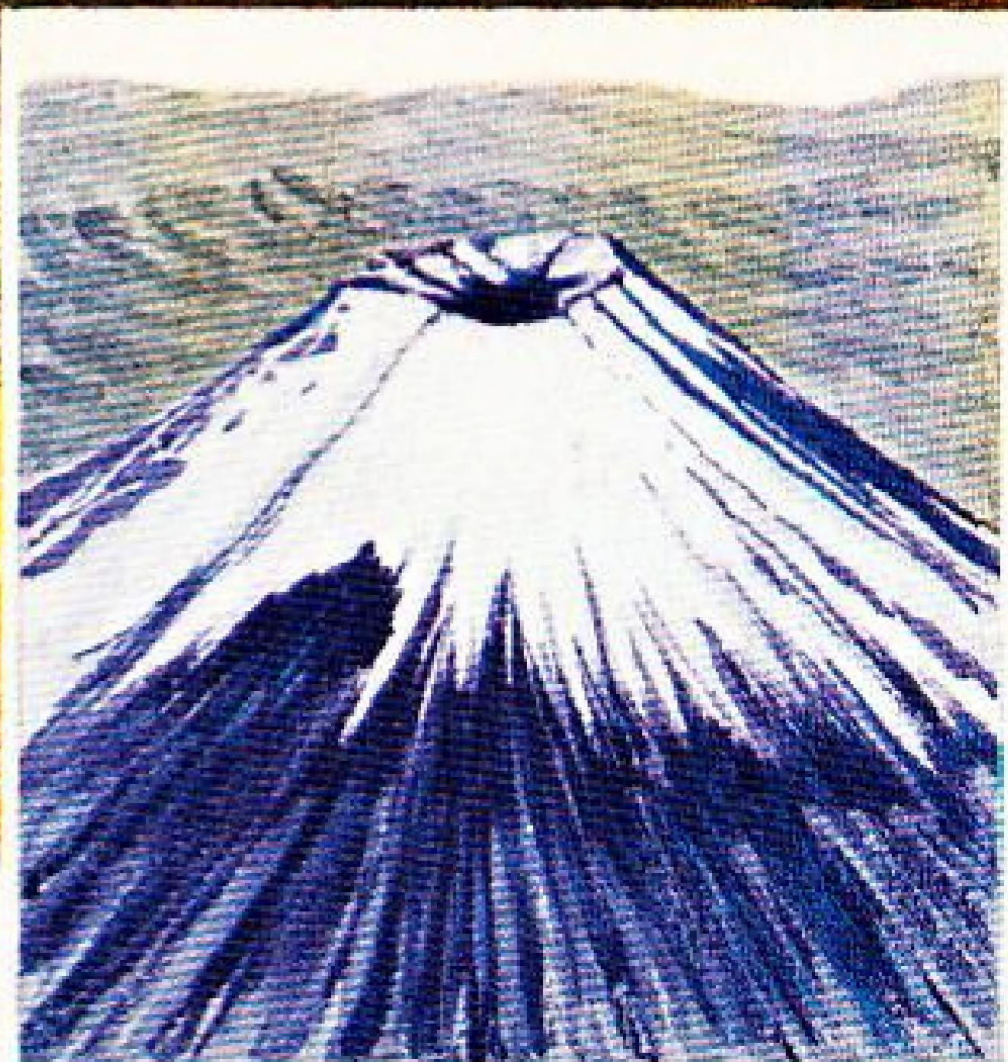
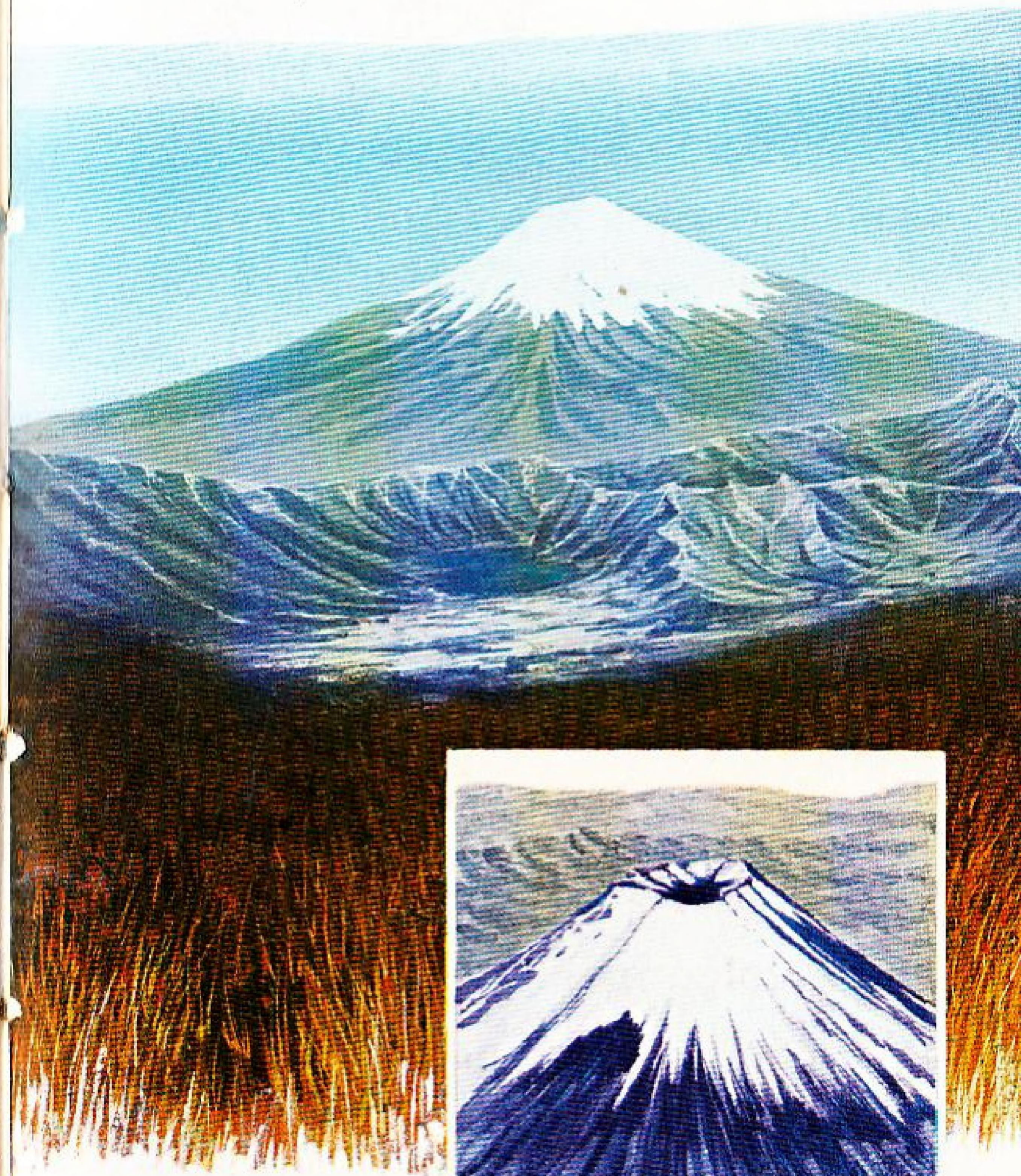


Volcanoes

Volcanoes such as Mount Hekla in Iceland and Mount Fuji in Japan are mountains that have formed where *lava* or hot, molten rock has come from inside the earth and then cooled to form solid rock. Often there is a deep, round crater instead of a summit.



Mt Fuji, Japan



*Close-up of crater
at summit*

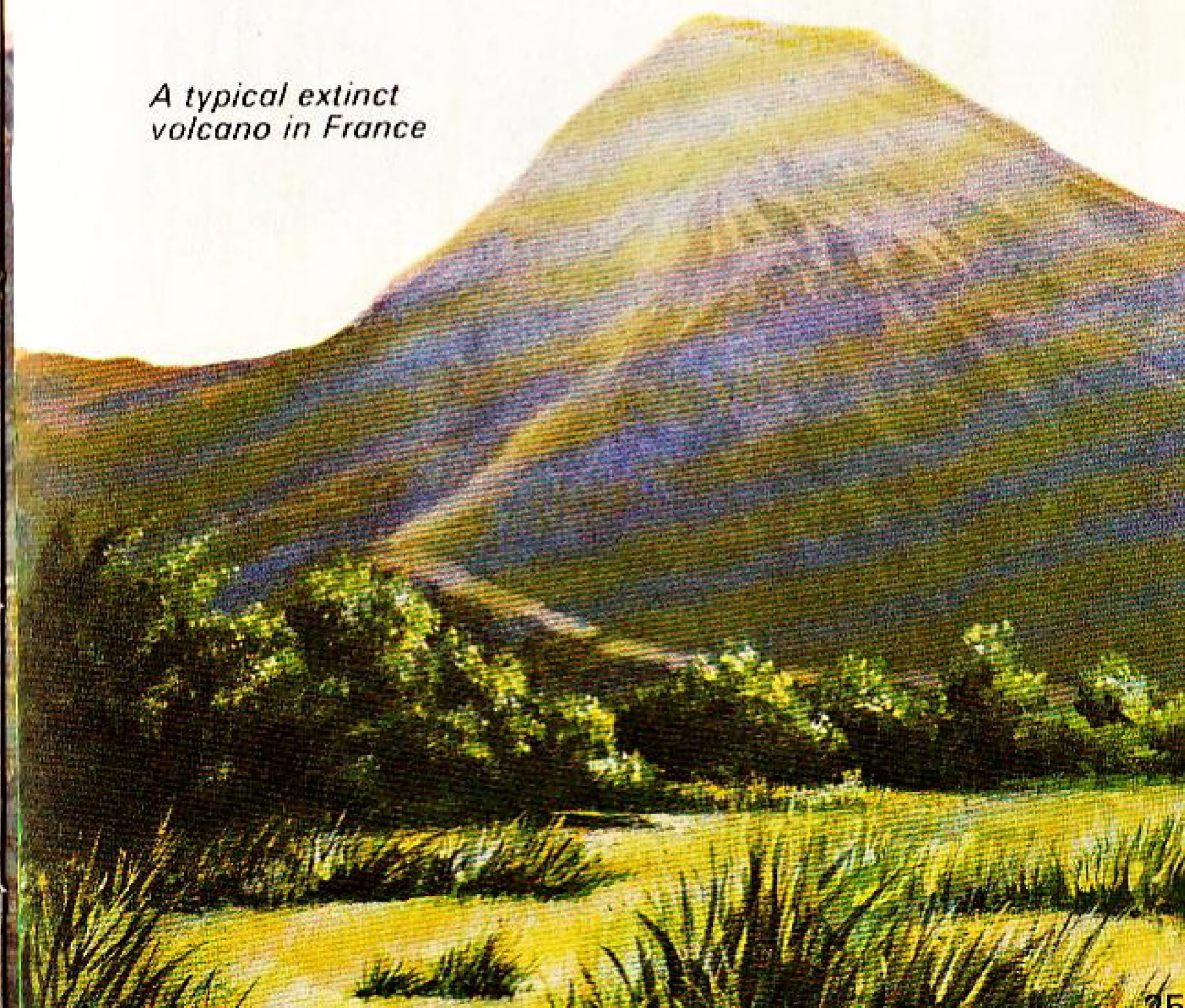


More volcanoes

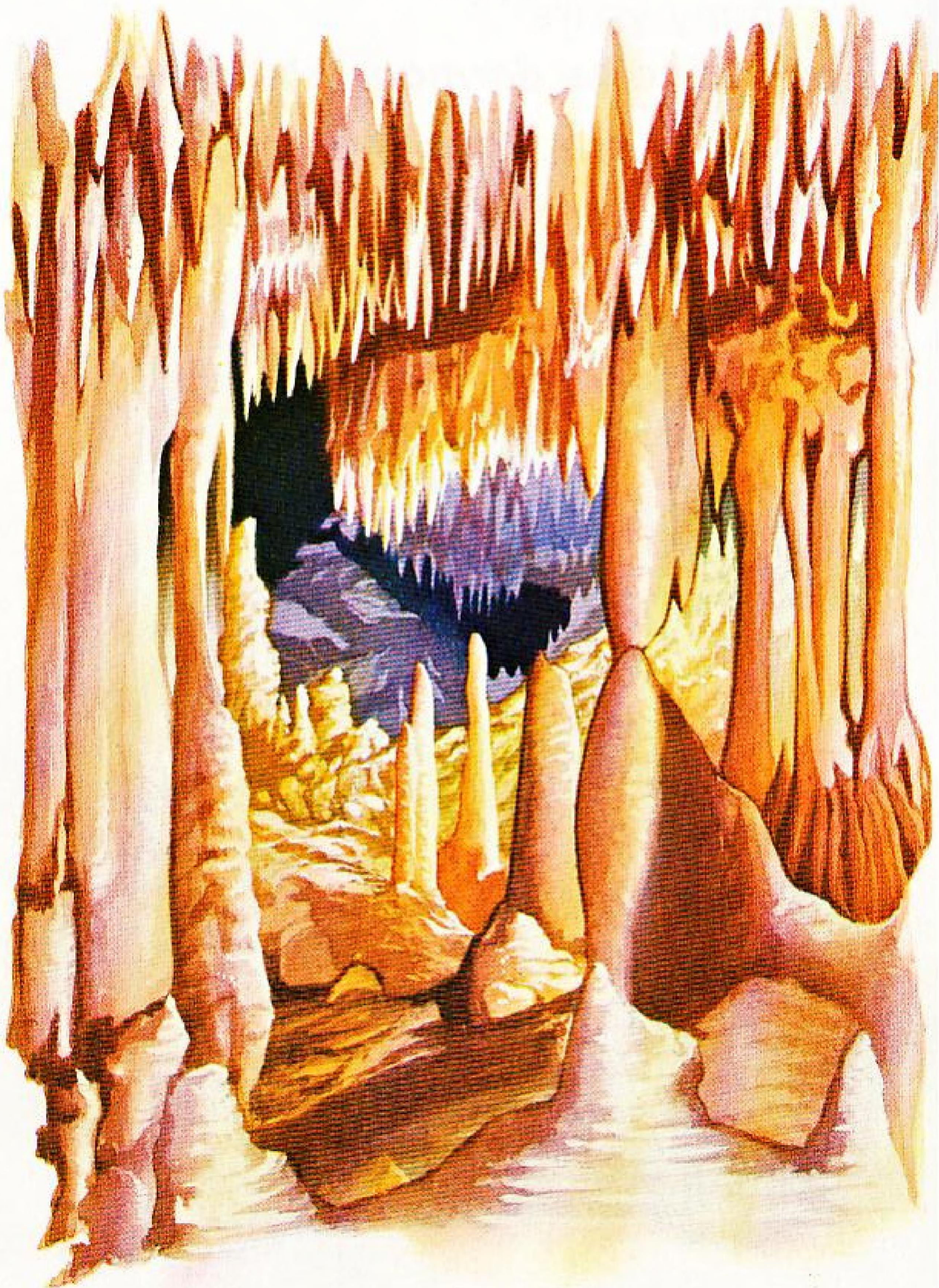
Volcanoes that *erupt*,
throwing out lava
and clouds of ash from time to time,
are called *active* volcanoes.

Those that have not erupted
for many years
are said to be *dormant* (sleeping).
They may erupt again one day.
Extinct or dead volcanoes are those
that have not erupted
for thousands of years.

*A typical extinct
volcano in France*



*Treak Cliff Cavern,
Derbyshire, U K*



Inside mountains

It is sometimes possible to go inside mountains.

Some rocks are dissolved by water, so that caves are formed.

Wookey Hole in Somerset and Treak Cliff Cavern in Derbyshire are well known English caves.



This painting of a bull was painted 15,000 years ago in a cave at Lascaux, France

Long ago men lived in caves.

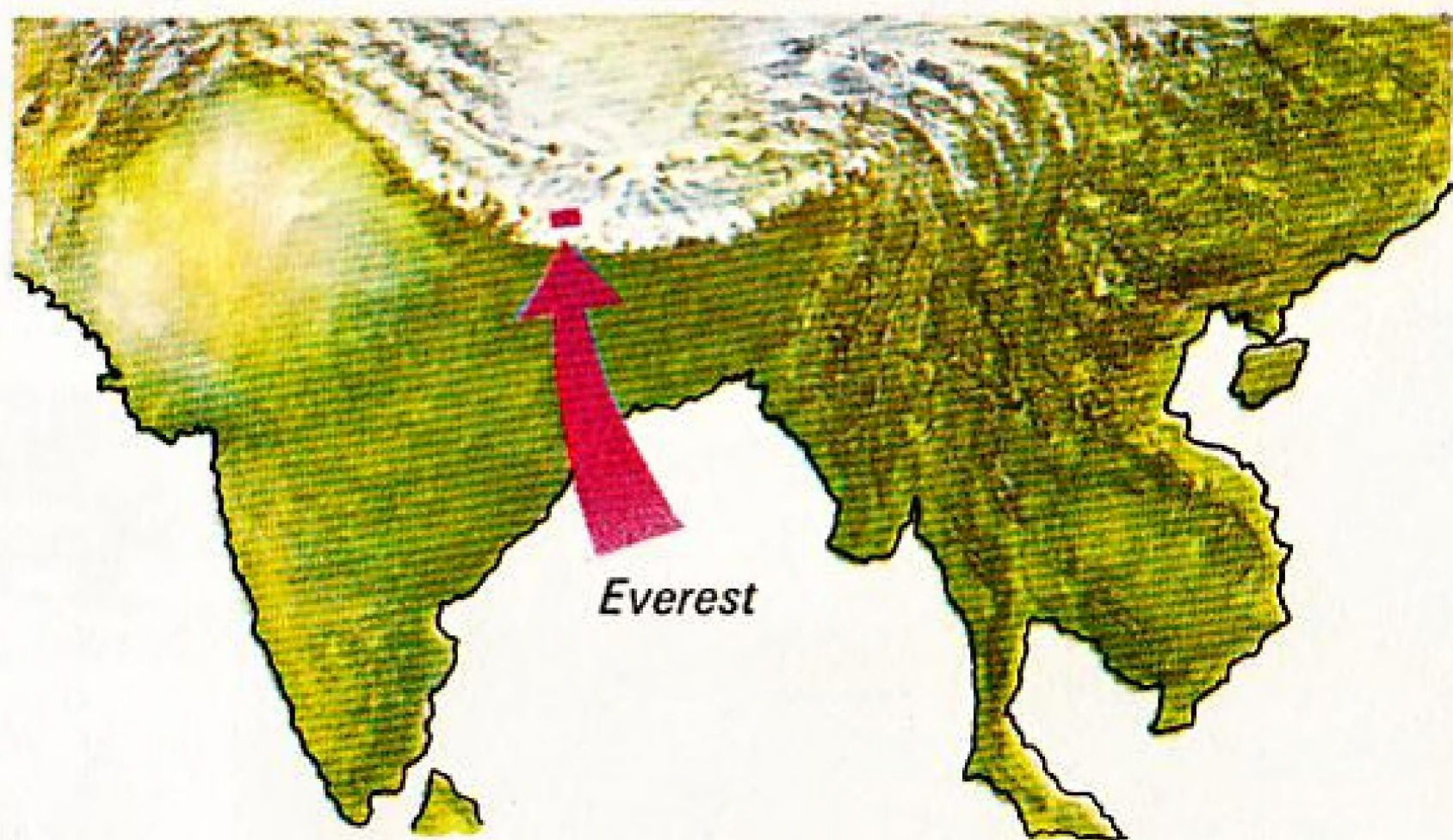
In France and Spain and other places they painted pictures of animals on the walls.



The world's highest mountain

The highest mountain in the world is Mount Everest, 8 848 metres (29,028 ft), in the Himalayas.

It is on the border between Nepal and Tibet.



The summit was first reached
in May, 1953
by Sir Edmund Hillary
and Sherpa Tenzing.

Mountains of the Moon

These mountains are
in Central Africa,
almost on the Equator.
Although their summits
are always covered in snow,
there is jungle at their feet.



Alpine 3660 m



Heath 2896 m



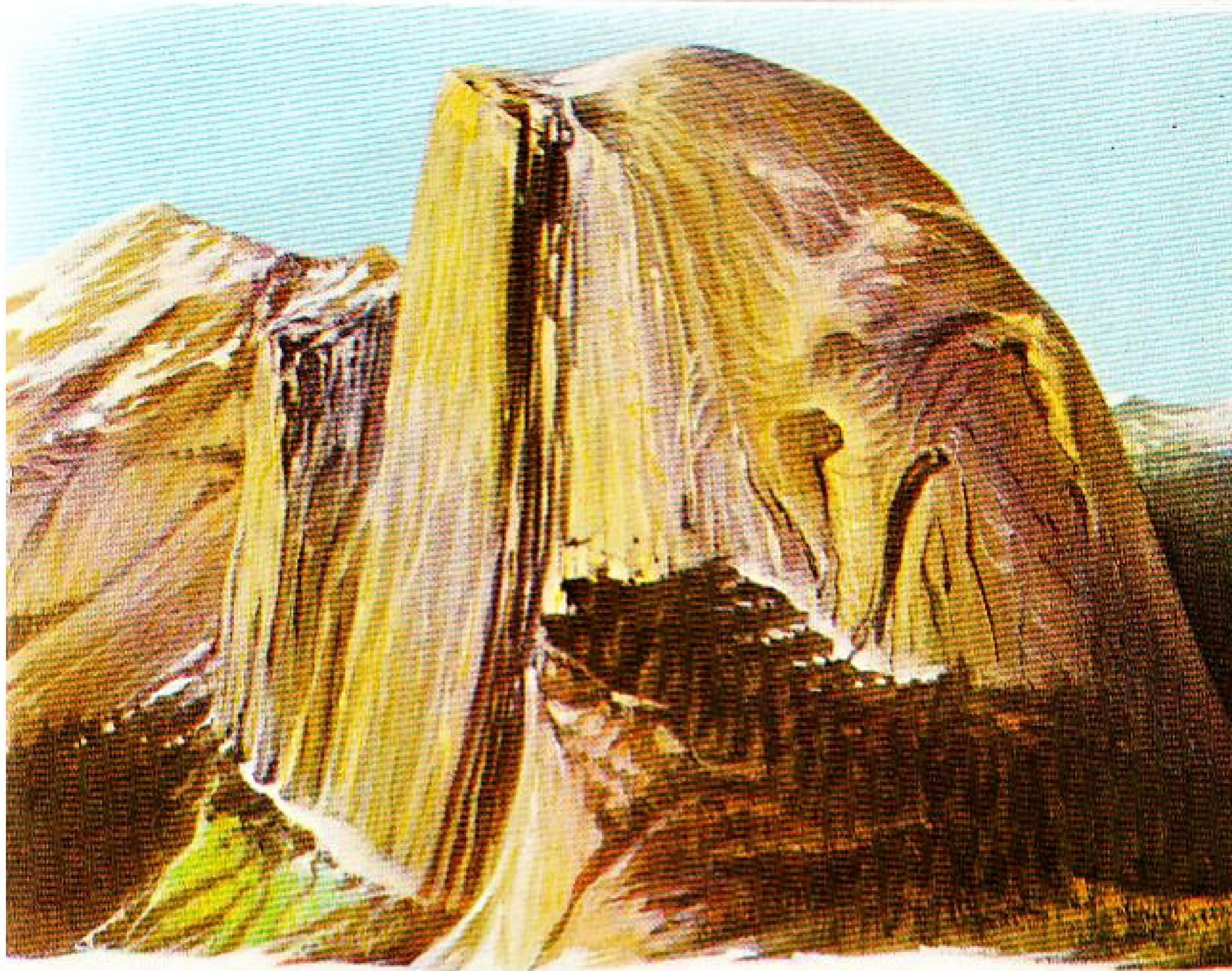
Bamboo 2286 m



Rain
Forest 1676 m



Savannah



A curious mountain

Here is a mountain
with a very strange shape.

It is Half Dome
in Yosemite National Park
in California, USA.

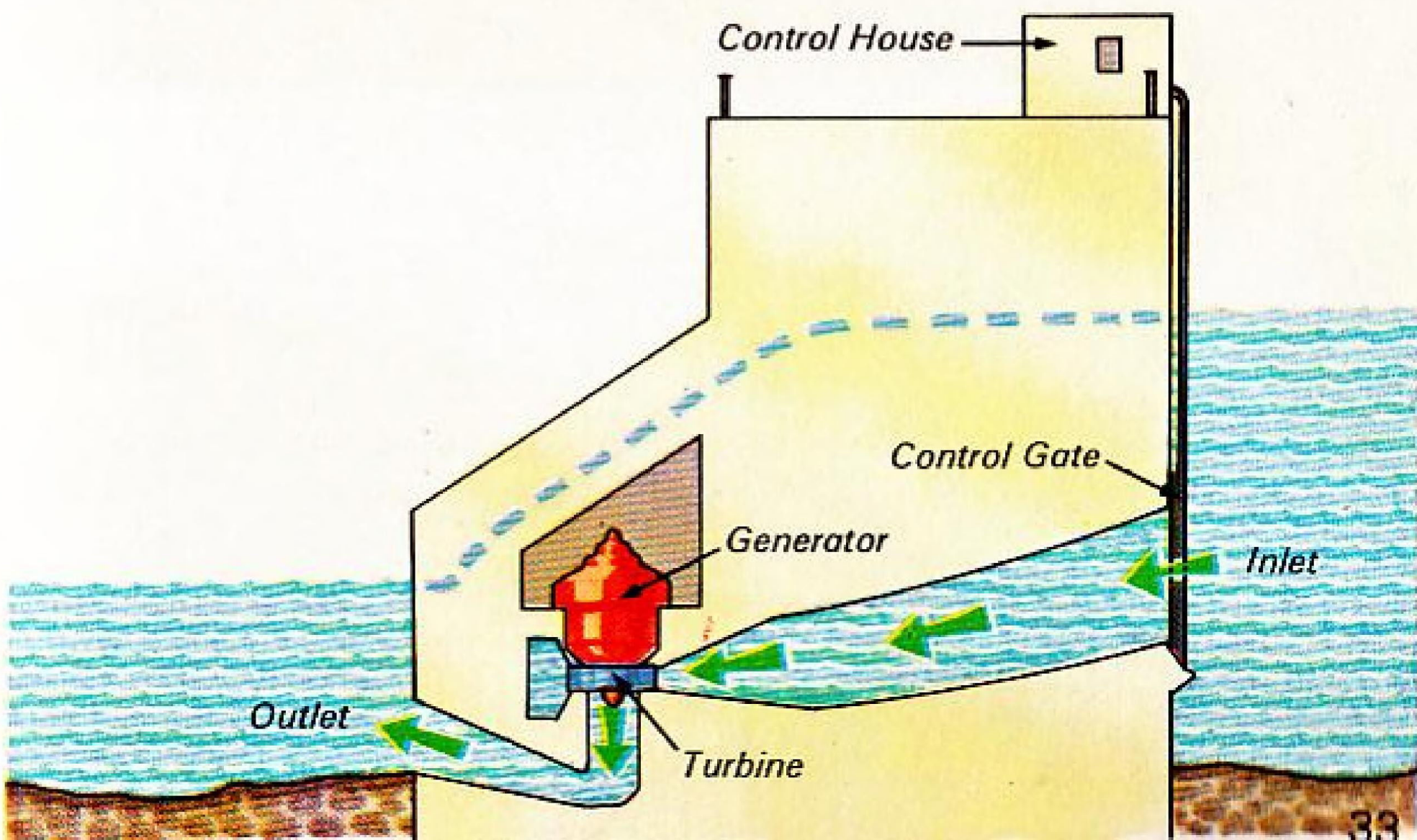
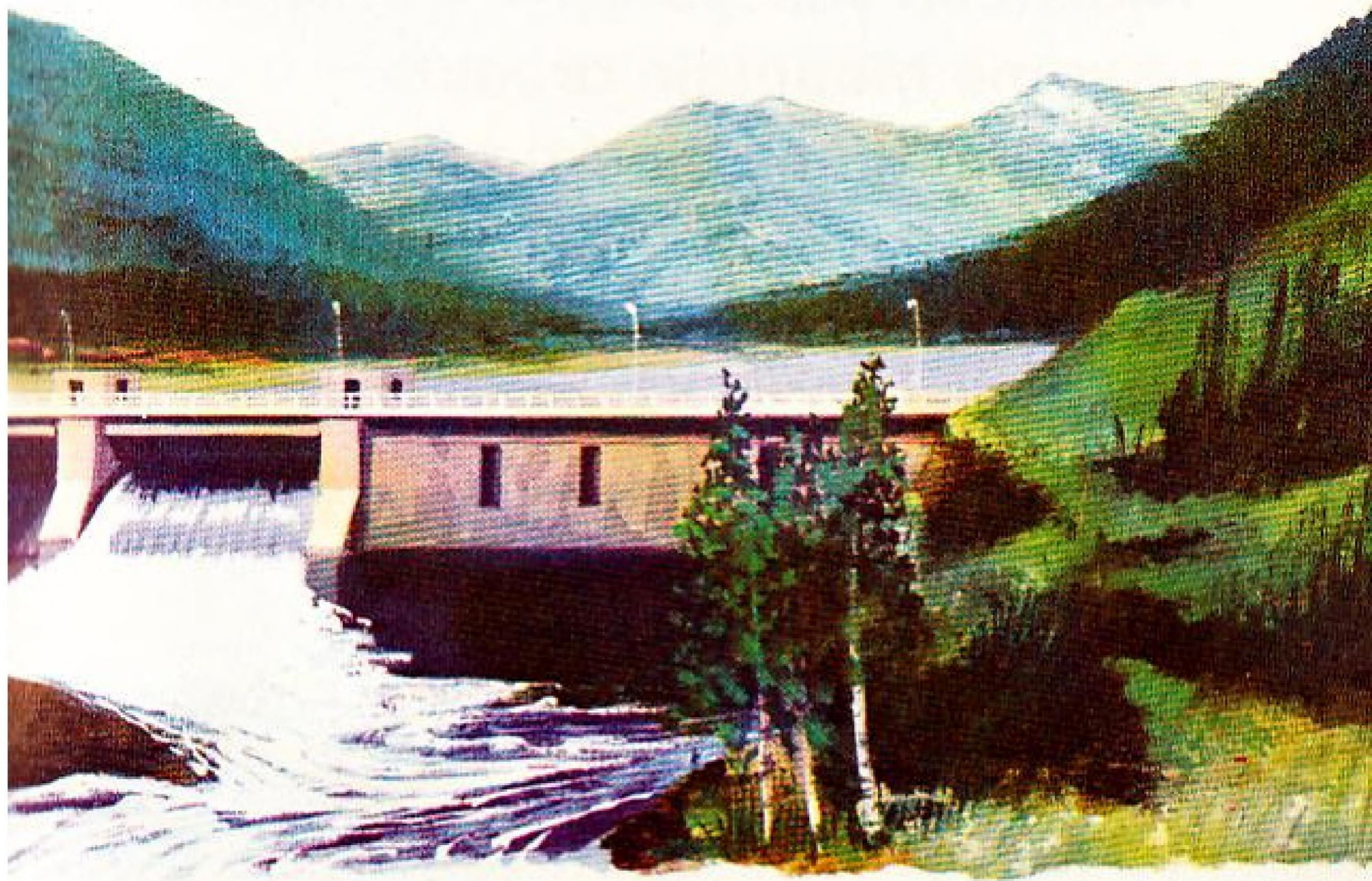
A round granite dome
was cut in half by a glacier.



Hydro-electricity

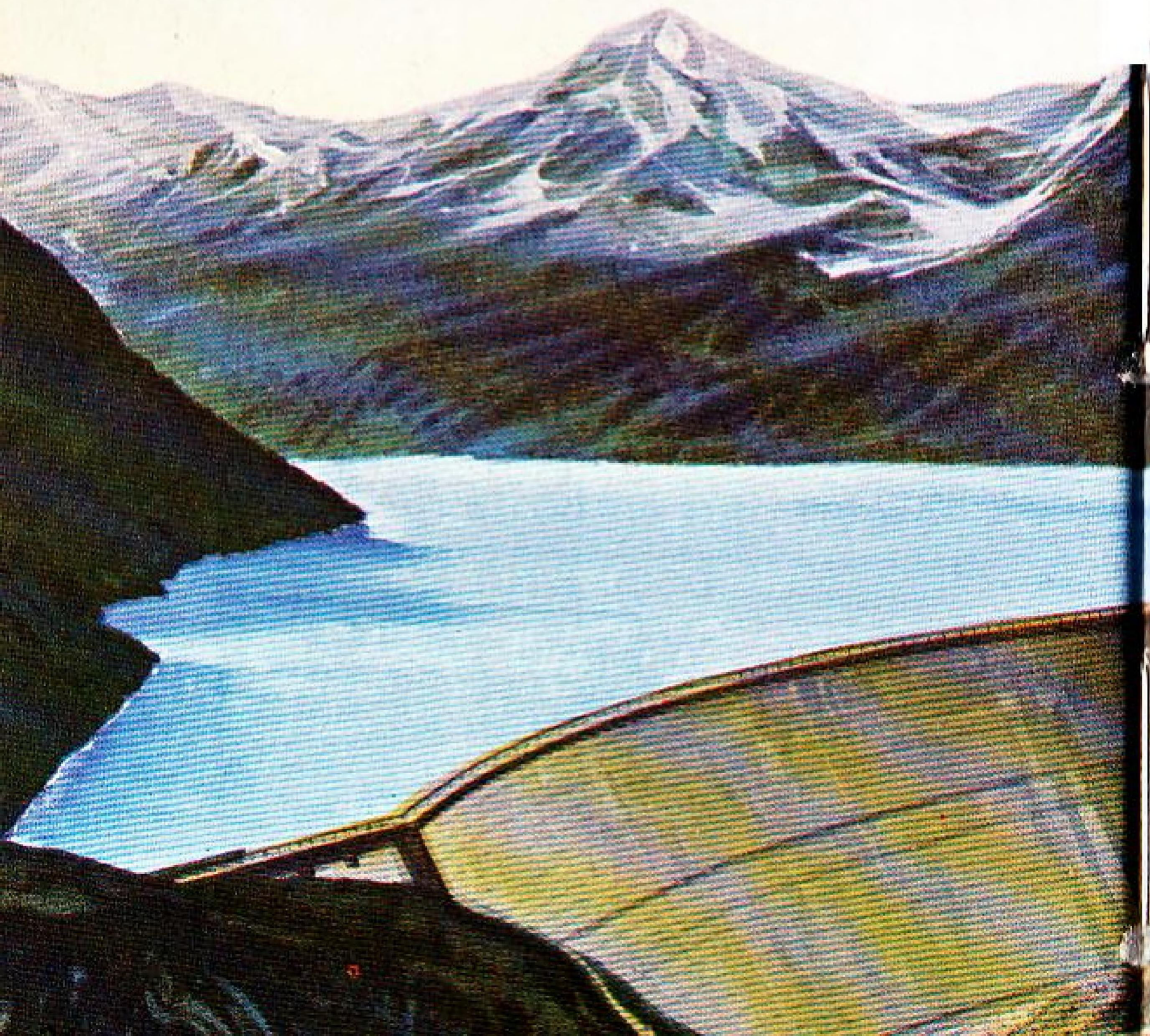
Mountain streams and rivers are sometimes used to make electricity.

Falling water is led by pipes into a *power-station*, where it turns *generators* to produce the power.



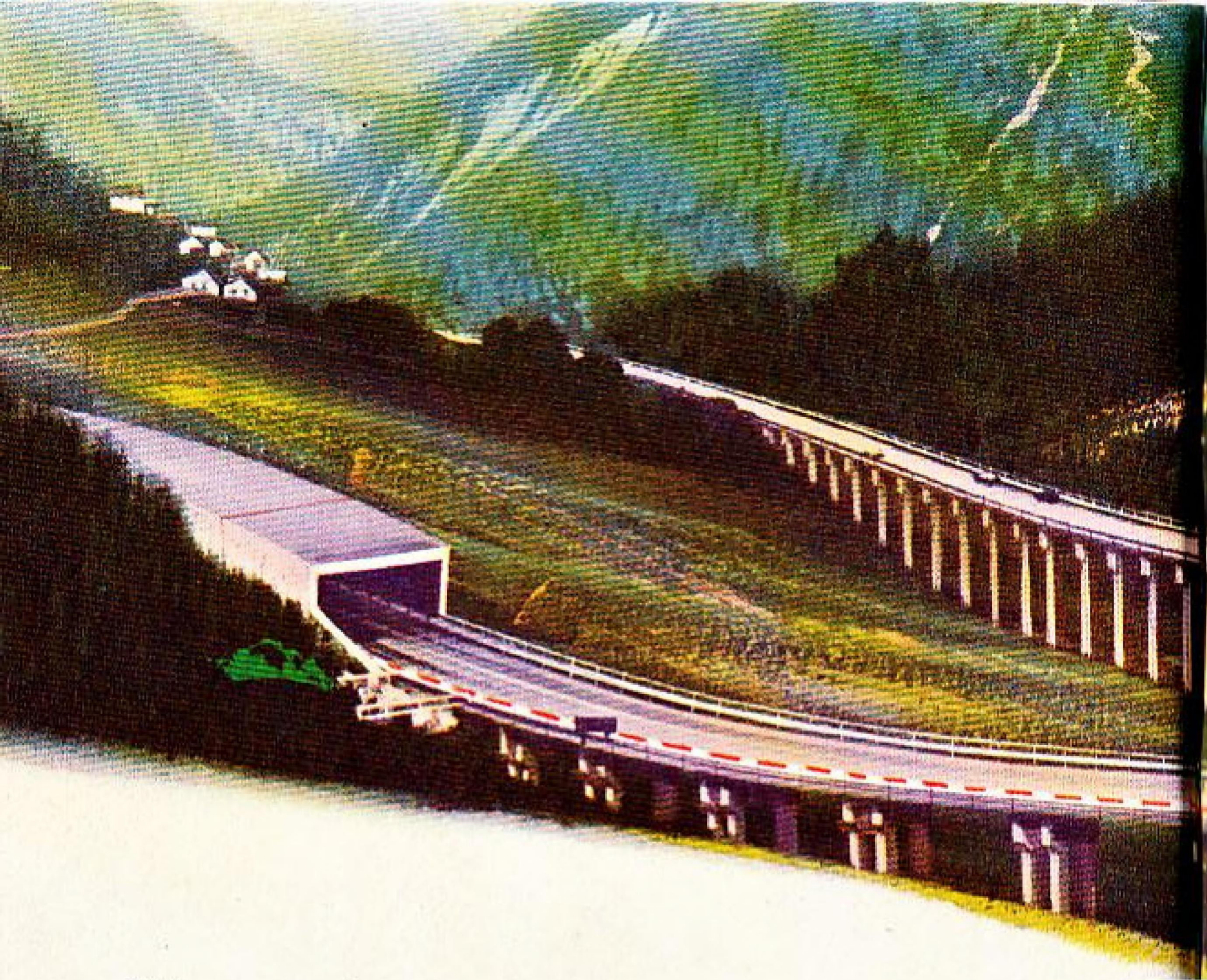
Dams

The steep valleys of some mountain areas are sometimes blocked by *dams* built of earth or concrete so that a *reservoir* (man-made lake) forms.



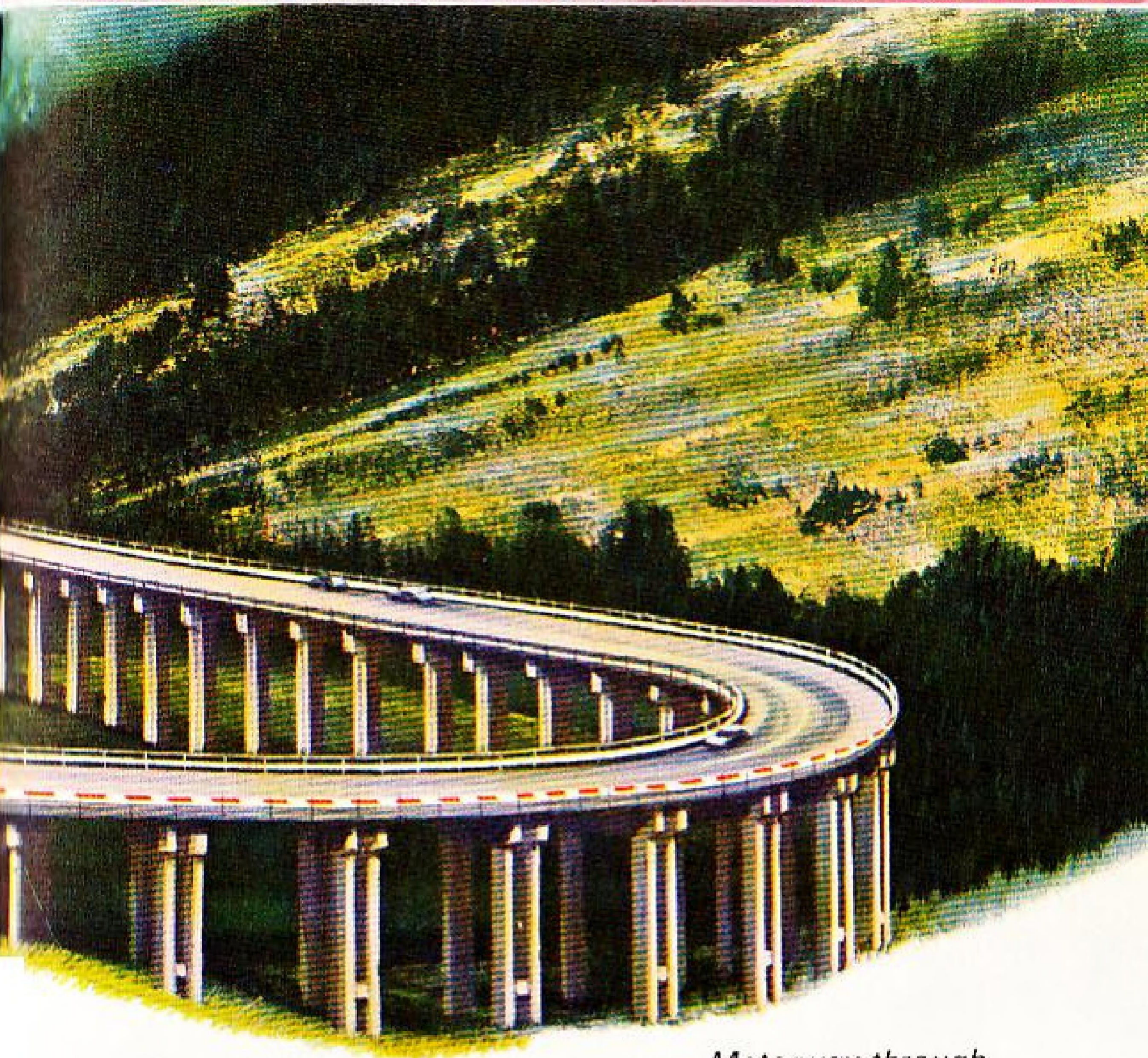
Water is often taken
from reservoirs in the mountains
to cities far away.





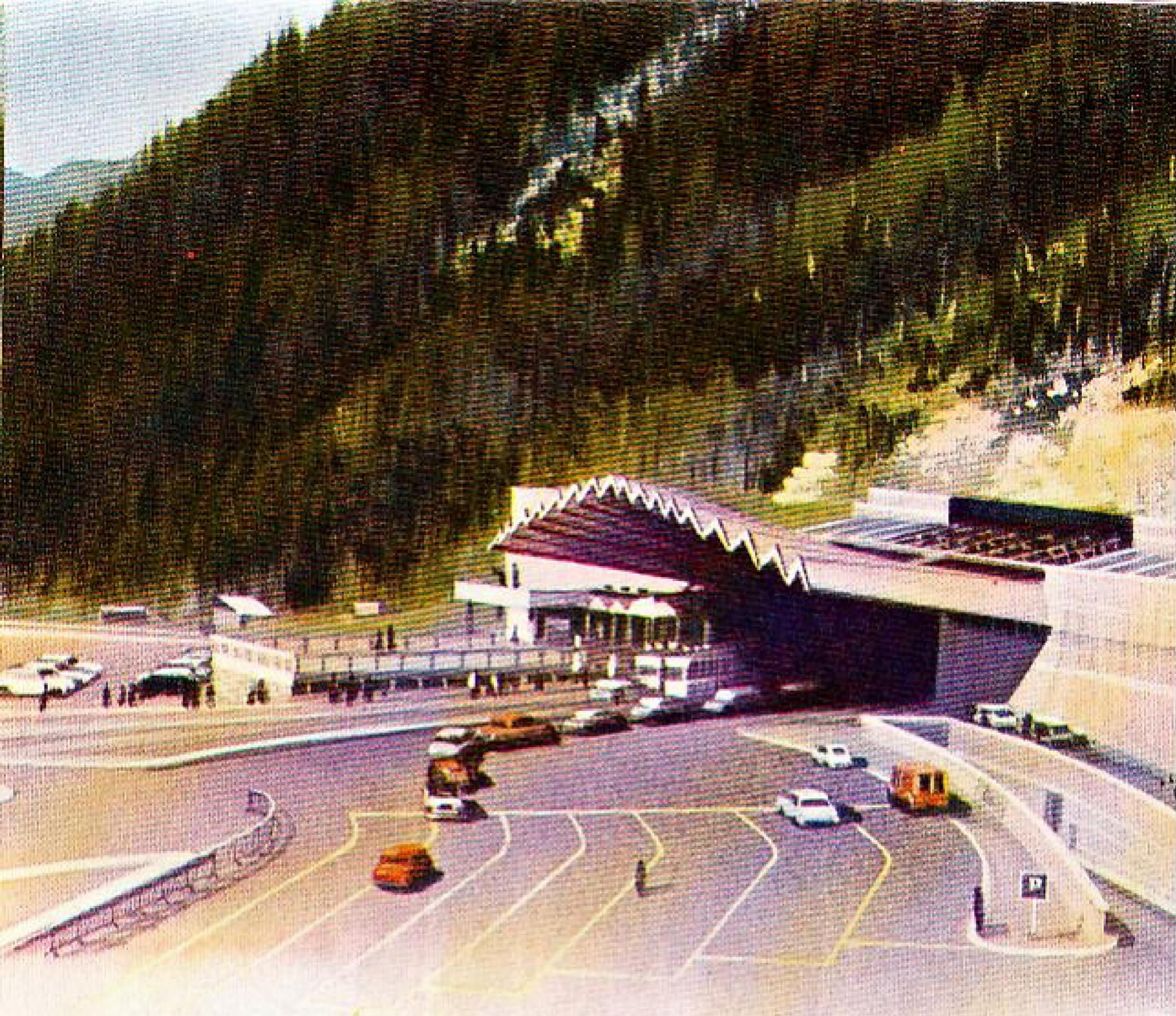
Mountain passes

For thousands of years men have used *passes* to cross mountain ranges. Once men could only get through with pack-horses and mules, but now railways and main roads use passes.



*Motorway through
the Great St Bernard Pass*

The Great Saint Bernard
and the Simplon
are important passes
through the Alps
between Switzerland and Italy.



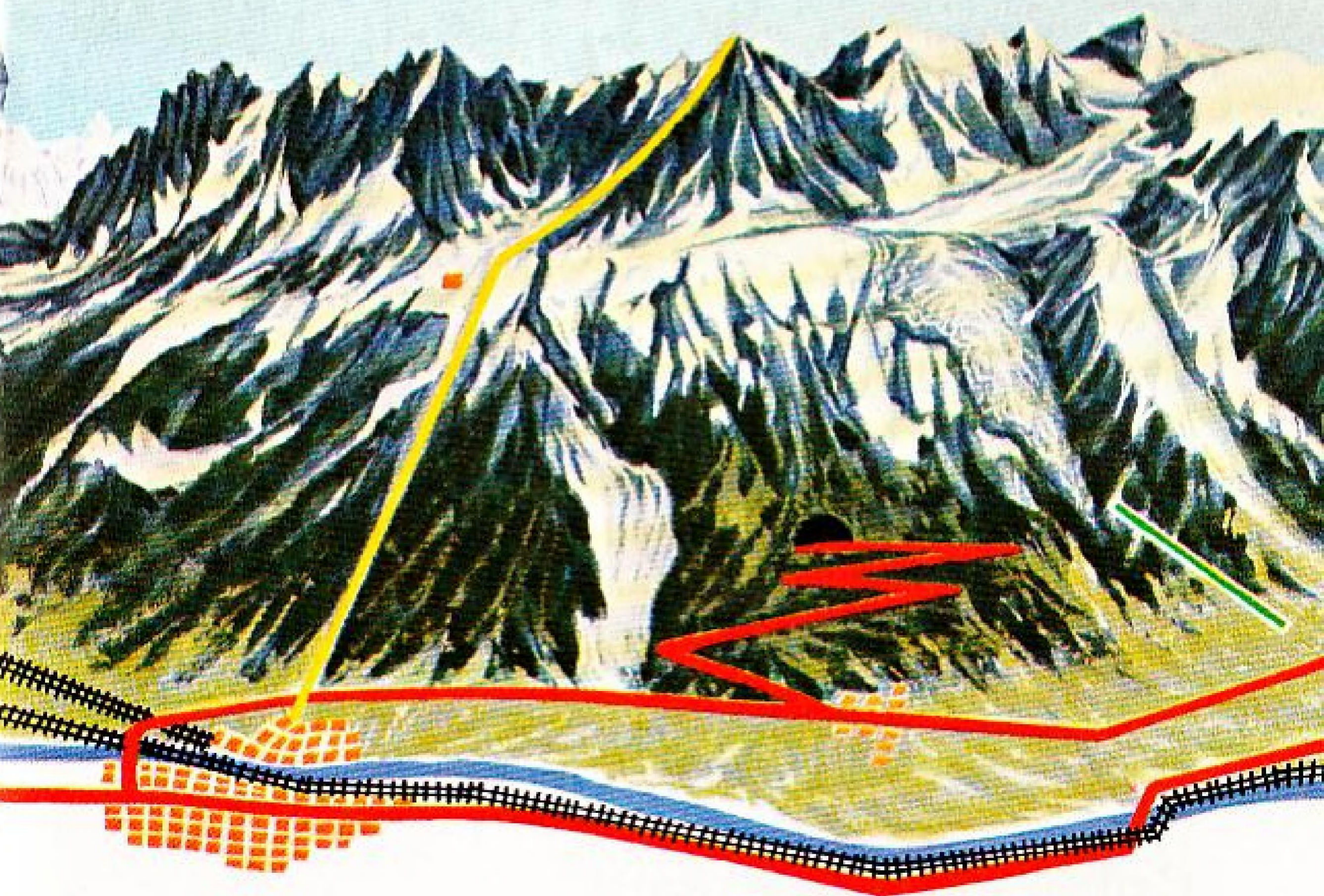
*Entrance to Mont
Blanc Tunnel*

Tunnels

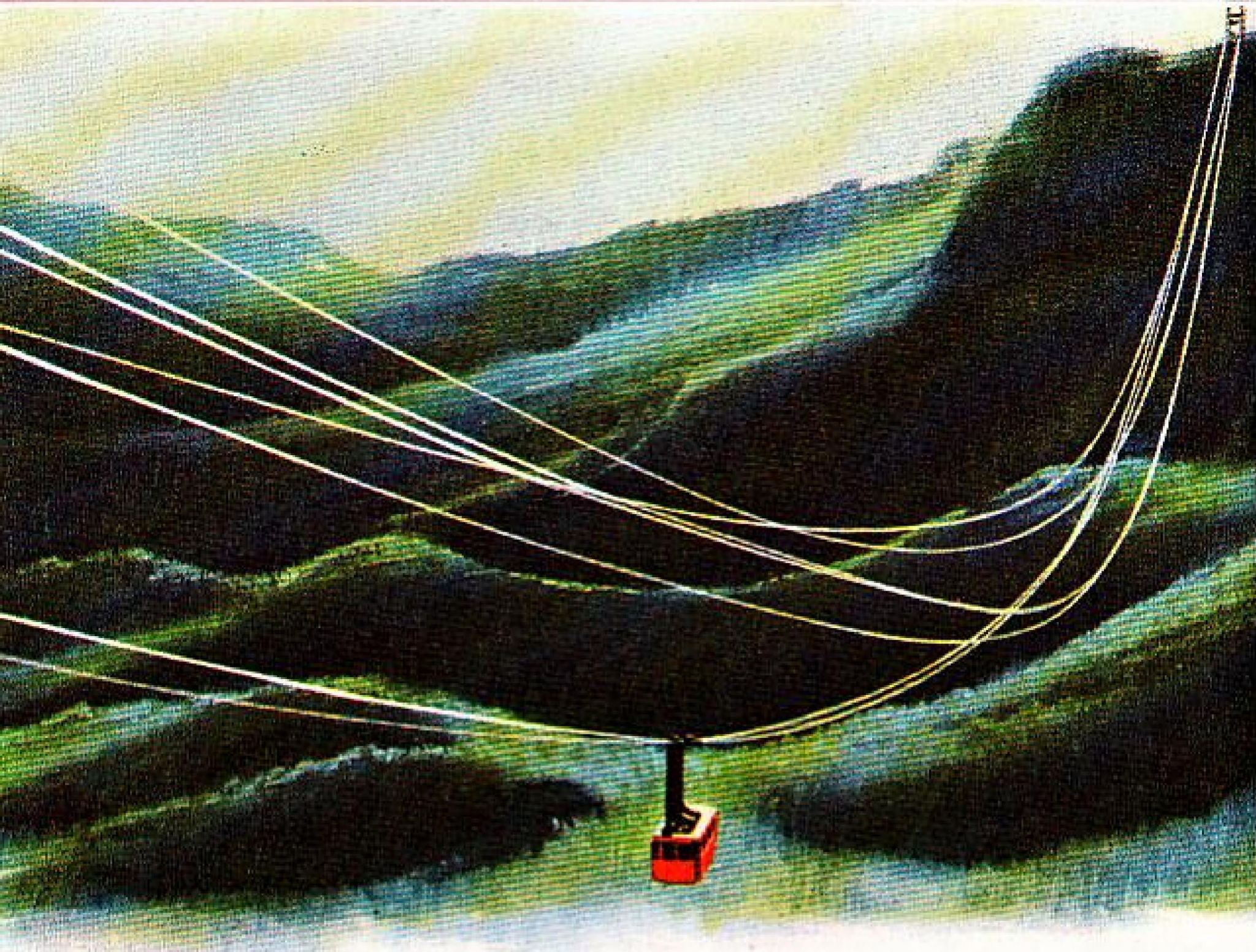
Tunnels are now used
to enable roads and railways
to get through high mountain ranges.

The Mont Blanc Tunnel
between France and Italy
is 11 km (7 miles) long.

*Approaches to
Mont Blanc Tunnel*



- | | | | |
|---|------------|---|--------------------|
|  | Road |  | Railway |
|  | Cable car |  | Houses |
|  | Chair lift |  | Entrance to tunnel |



Cable cars and chairlifts

Cable cars are like buses but hang from strong cables fixed between the bottom of a mountain and a point close to the summit.

They are pulled up and down by electric motors.

Cable cars are used in mountainous areas in parts of France and Switzerland.

On a *chairlift* single seats
are fixed to a wire.

They are used to take skiers
to the ski-slopes.







Fell-walking

Many people enjoy the beautiful scenery of mountains and the challenge of reaching a summit.

At weekends and in the holidays many people go fell-walking. (A *fell* is a steep mountainside in the north of England.)

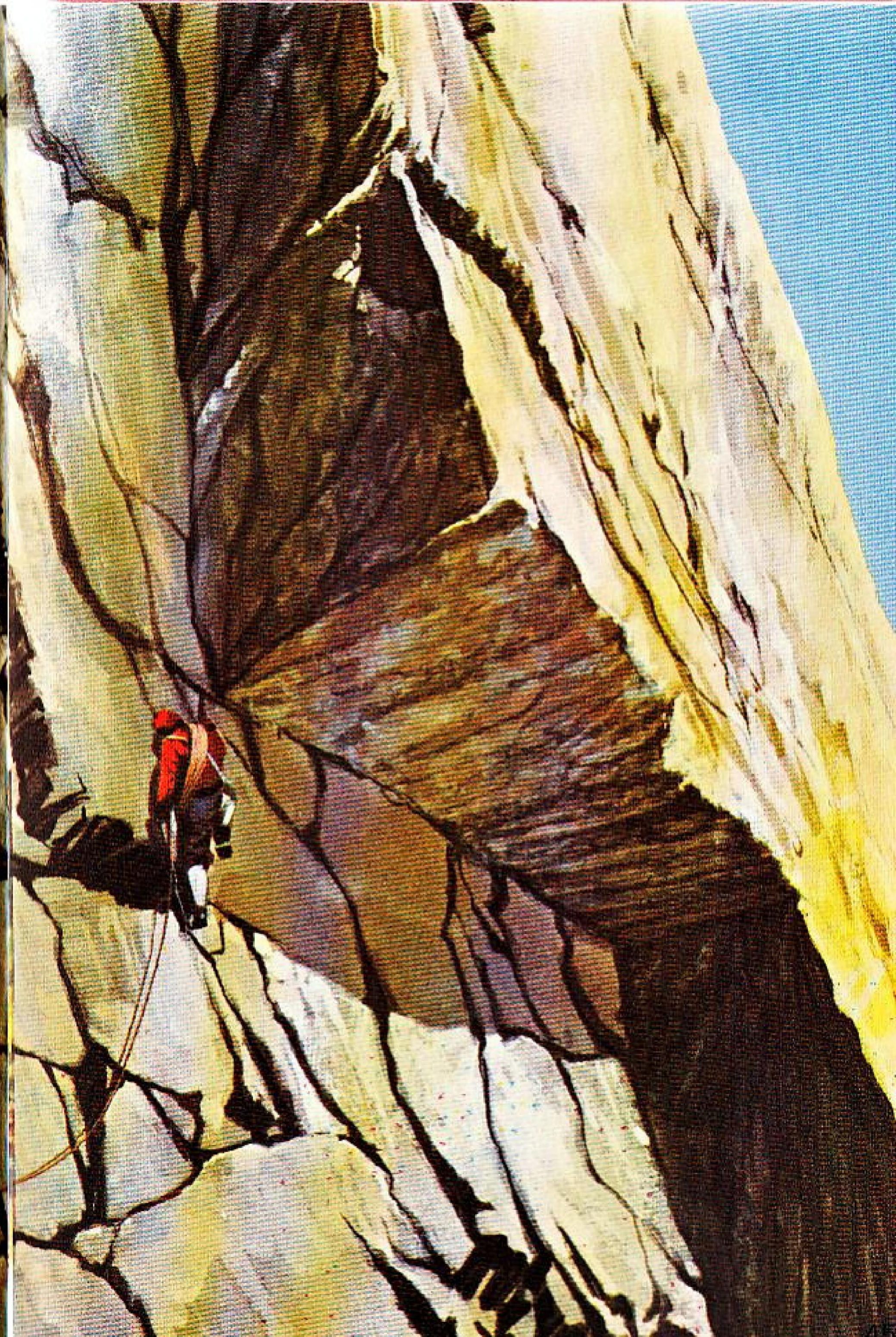
Rock-climbing

Rock-climbers tie ropes around their waists when climbing very steep rock faces.

Several climbers are roped together then they climb a cliff or rock face one at a time.

If one climber slips the others can hold him.





Mountaineering

Climbing high or difficult mountains is called *mountaineering*.

Ice axes are used to help climbers in snow and ice.

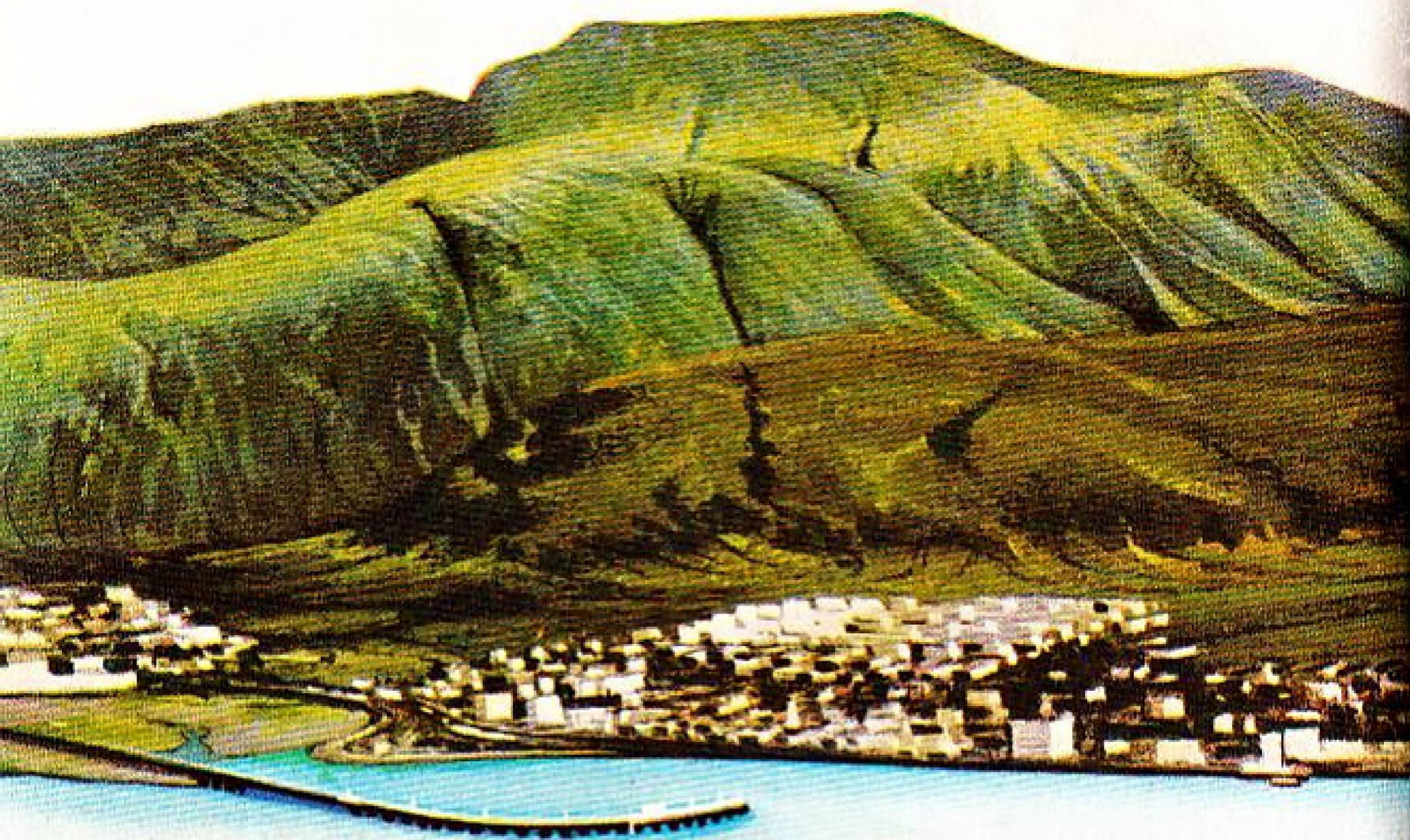
Goggles may have to be worn to protect climbers' eyes from the glare of sunlight on snow.

Close to the summits of the very highest mountains there is less air than lower down.





Mountaineers on Everest and other high peaks have to take oxygen in tanks strapped to their backs to help them to breathe.

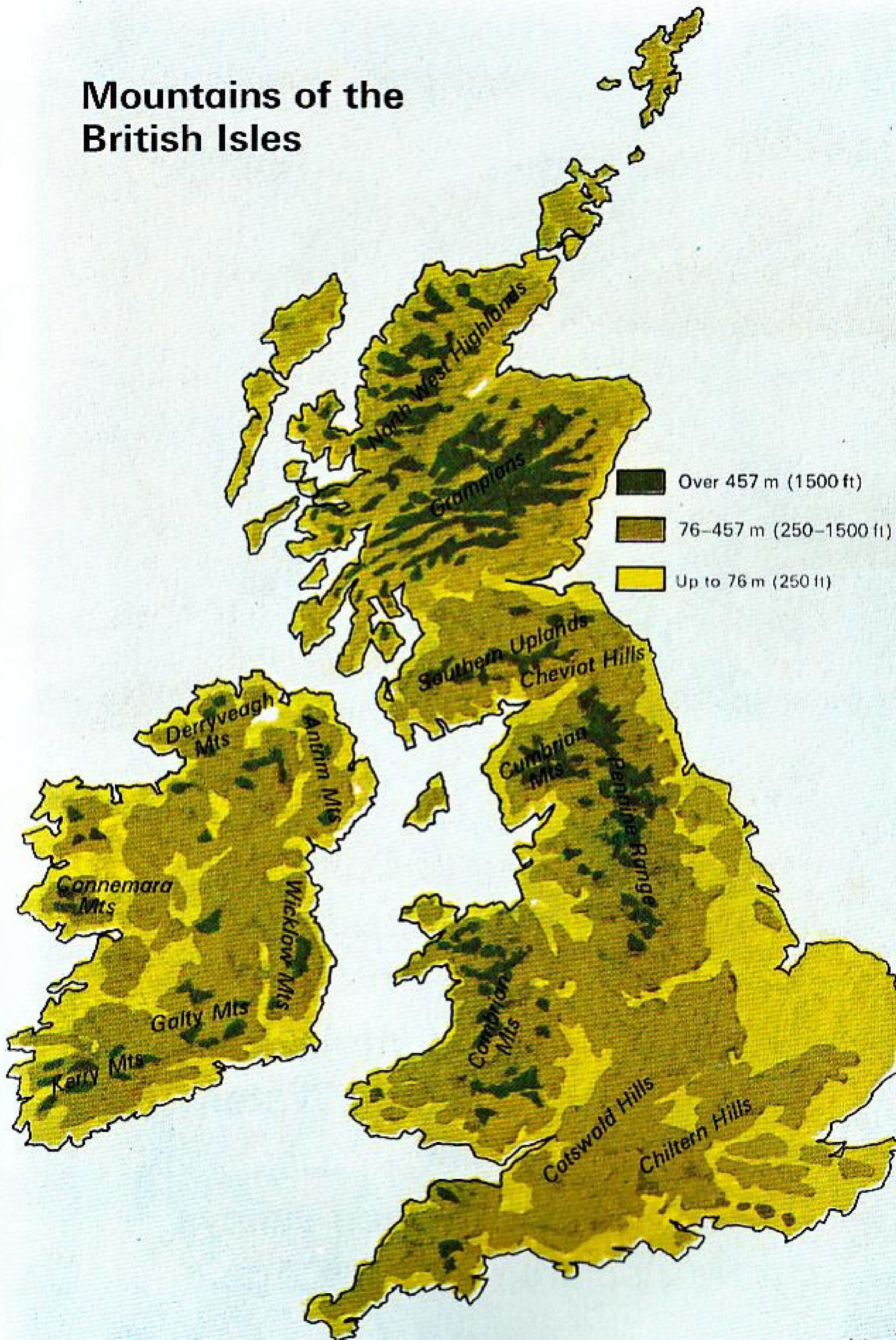


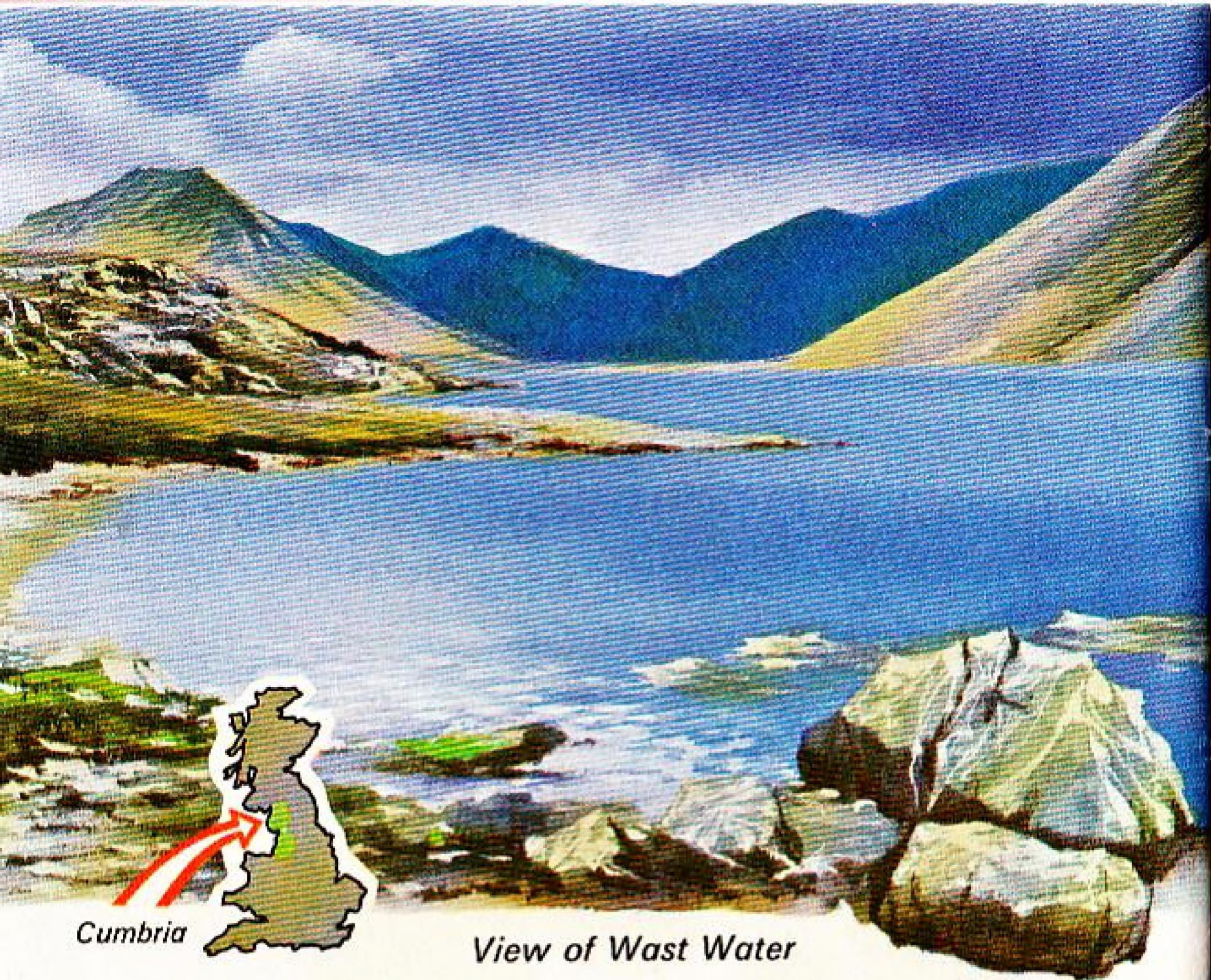
Ben Nevis



Snowdon

Mountains of the British Isles





Cumbria

View of Wast Water

Cumbria

The Lake District of Cumbria is one of the most beautiful mountain areas of Britain.

As well as high mountains there are lakes such as Coniston Water and Windermere.

These lakes are in deep valleys cut by glaciers in the Ice Age.

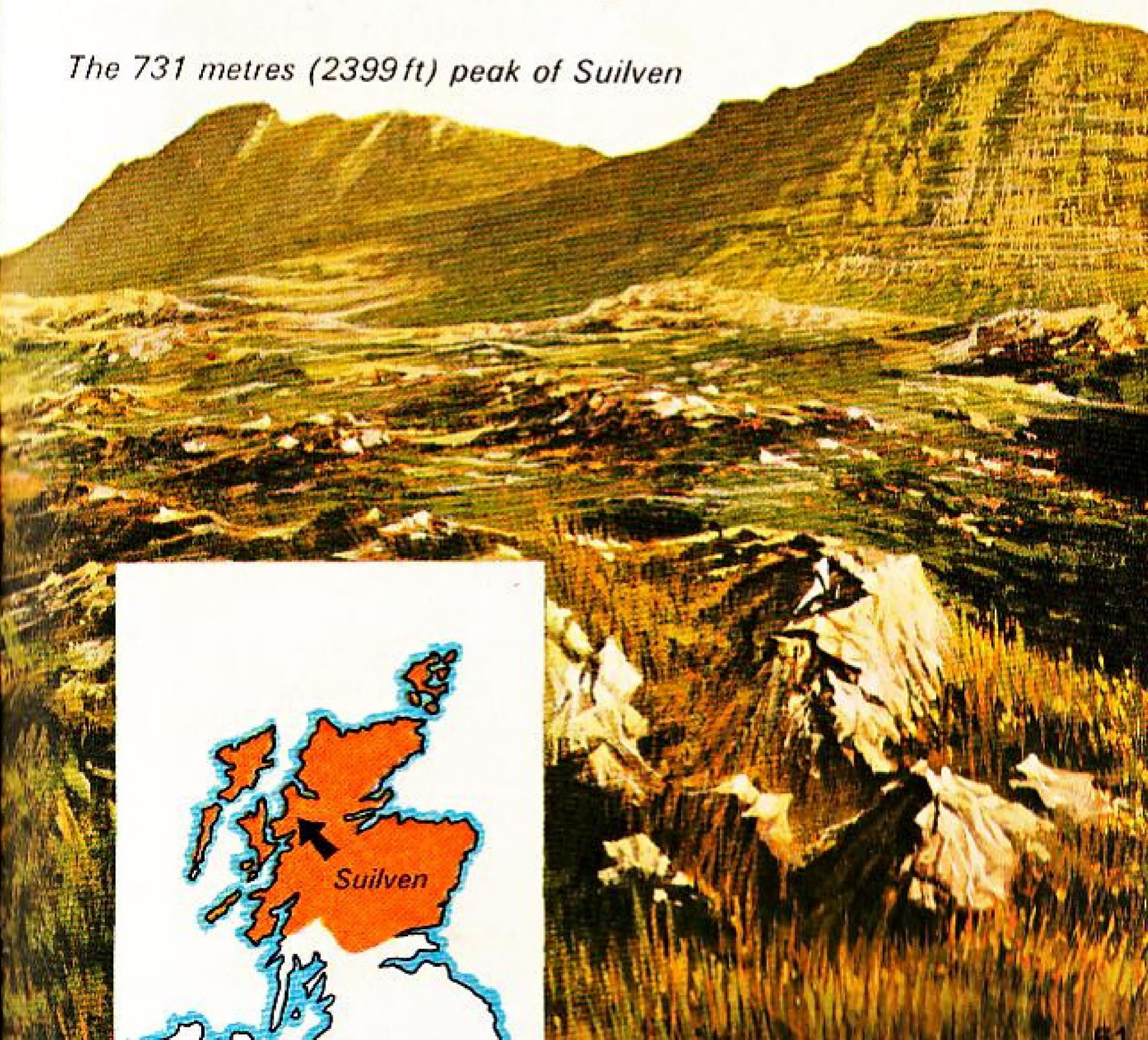
The Scottish Highlands

The Highlands of Scotland are the highest mountains in Britain.

On a few of them there are snow patches that lie for years at a time.

Ski-ing is usually possible in winter in the Highlands.

The 731 metres (2399 ft) peak of Suilven



Index

	<i>page</i>
Africa	30
Alpine plants	12, 13, 30
Alps	12, 15, 16, 19, 37
Animals	14, 15, 17
Bamboo	30
Ben Nevis	48
Bighorn sheep	15
Cable cars	39, 40
Cacti	10, 11
California	31
Canada	18
Caves	26, 27
Chairlift	39, 40, 41
Chamois	14, 15
Coniston Water	50
Cumbria	50
Dams	34-35
Deserts	10, 11
England	21, 27, 35, 43, 50
Equator	30
Erosion	7, 20, 31
Everest	28-29, 47
Fell-walking	42-43
Flowers	12-13, 16
Foothills	4-5, 10
Forests	10, 11, 30
France	25, 27, 39, 40
Fuji, Mount	22, 23

	<i>page</i>
Generators	32, 33
Glaciers and their effect	18-21, 31
Goats	17
Goggles	46
Great Saint Bernard Pass	36, 37
Half Dome (U S A)	31
Heath	30
Hekla, Mount	22
Highlands of Scotland	51
Hillary, Sir Edmund	29
Himalayas	19, 28-29
Hydro-electricity	32-33
Ibex	14, 15
Ice Age	20
Ice axes	46
Iceland	22
Ireland	21
Italy	37, 39
Japan	22
Lake District	50
Lascaux (France)	27
Lava	22, 24
Maps –	
Mountains of British Isles	49
Mountains of world	<i>endpaper</i>

	<i>page</i>
Meadows, alpine	16-17
Mont Blanc Tunnel	38, 39
Mountain heights	
<i>endpaper</i> , 4, 28, 29, 49, 51	
Mountain ranges	4-5, 7, 8-9, 16-19, 20-21, 28-30, 32-35, 39, 42-43, 49, 51
Mountaineering	29, 46-47
Mountains of the Moon	30
Nepal	28
Norway	17
Oxygen	47
Passes	36-37
Plants	10-13, 30
Plant-life on mountains in south west U S A	10, 11
Power-station	32, 33
Railways	36, 38, 39
Rain forest	30
Reservoirs	34-35
Rivers	7, 32
Roads	36-39
Rock-climbing	44-45
Rock plants	10, 12-13
Rocky Mountains	10, 11, 15, 18-19
Ruwenzori Mountains	30
Savannah	30
Scotland	21, 48, 51

	<i>page</i>
Sheep	15, 17
Simplon Pass	37
Ski-ing	41, 51
Snowdon	48
Snow-fields	18, 19
Spain	27
Stalactites and stalagmites	26
Streams	32
Suilven	51
Switzerland	17, 37, 40
Tenzing, Sherpa	29
Tibet	28
Treak Cliff Cavern (Derbyshire)	26, 27
Tunnels	38-39
U S A	10, 11, 31
Valleys	7, 34
Volcanoes	22-25
Wales	21, 48
Wall paintings	27
Wast Water	50
Weather	8, 9
Windermere	50
Wookey Hole (Somerset)	27
Yosemite National Park (U S A)	31



List of titles in Series 737

- | | | | |
|----|-------------------------|----|-------------------------------|
| 1 | <i>water</i> | 18 | <i>big animals</i> |
| 2 | <i>ducks and swans</i> | 19 | <i>under the ground</i> |
| 3 | <i>man in the air</i> | 20 | <i>apes and monkeys</i> |
| 4 | <i>man and his car</i> | 21 | <i>living things</i> |
| 5 | <i>lions and tigers</i> | 22 | <i>the tree and its world</i> |
| 6 | <i>man on the sea</i> | 23 | <i>air</i> |
| 7 | <i>dinosaurs</i> | 24 | <i>seals and whales</i> |
| 8 | <i>castles</i> | 25 | <i>reptiles</i> |
| 9 | <i>baby animals</i> | 26 | <i>deserts</i> |
| 10 | <i>roads</i> | 27 | <i>the stream</i> |
| 11 | <i>song birds</i> | 28 | <i>coffee</i> |
| 12 | <i>trains</i> | 29 | <i>fire</i> |
| 13 | <i>bridges</i> | 30 | <i>chocolate and cocoa</i> |
| 14 | <i>homes</i> | 31 | <i>bread</i> |
| 15 | <i>leaves</i> | 32 | <i>polar regions</i> |
| 16 | <i>soldiers</i> | 33 | <i>mountains</i> |
| 17 | <i>sounds</i> | 34 | <i>forests</i> |

Ladybird titles cover a wide range of subjects and reading ages.
Write for a free illustrated list from the publishers:

LADYBIRD BOOKS LTD Loughborough Leicestershire England